

ENVIRONMENTAL IMPACT EVALUATION

*Prepared in accordance with the
Connecticut Environmental Policy Act*

Southern Connecticut State University Campus Master Plan Update EIE *New Haven and Hamden, Connecticut*

FEBRUARY 3, 2009



Sponsoring Agency:
*State of Connecticut
Board of Trustees for the
Connecticut State University System*

Participating Agencies:
*State of Connecticut
Department of Public Works and
Southern Connecticut State University*

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LIST OF ABBREVIATIONS

ACM	Asbestos Containing Material
ADT	Average Daily Traffic
ASF	Assignable Square Feet
AST	Above-Ground Storage Tanks
BOT	Board of Trustees
CSUS	Connecticut State University System
CEPA	Connecticut Environmental Policy Act
CEQ	Council on Environmental Quality
CGS	Connecticut General Statutes
CL&P	Connecticut Light and Power
CNG	Connecticut Natural Gas
CO	Carbon Monoxide
ConnDOT	Connecticut Department of Transportation
CTDEP	Connecticut Department of Environmental Protection
DPW	Connecticut Department of Public Works
EIE	Environmental Impact Evaluation
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTE	Full Time Equivalent
GSF	Gross Square Feet
HCS	Highway Capacity Software
LBP	Lead-Based Paint
LOS	Level of Service
M	Million
NAAQS	National Ambient Air Quality Standards
NO ₂	Nitrogen Dioxide
O ₃	Ozone
OPM	Connecticut Office of Policy and Management
OSHA	Occupational Safety and Health Administration (U.S. Dept. of Labor)
Pb	Lead
PCBs	Polychlorinated Biphenyls
PM ₁₀	Particulate Matter (PM with a diameter of 10 microns or less)
PM _{2.5}	Particulate Matter (PM with a diameter of 2.5 microns or less)
PPM	Parts Per Million
RCSA	Regulations of Connecticut State Agencies
RSRs	Remediation Standards Regulations
SHPO	State Historical Preservation Office/Officer
SO ₂	Sulfur Dioxide
STC	State Traffic Commission
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Introduction

The Board of Trustees of the Connecticut State University System (CSUS) (sponsoring agency), in cooperating with the Department of Public Works (DPW) and Southern Connecticut State University (SCSU) (participating agencies), is preparing an update of the Master Plan for SCSU, the system's campus located in New Haven and Hamden, Connecticut. The updated Master Plan would be implemented through various projects on campus providing new or renovated academic, administrative, athletic and residential space, new parking garages, landscaping, new quadrangles, linkage of exterior spaces throughout the campus, and demolition of some existing structures, proposed for implementation between its approval date and 2015.

These improvements have been released as part of an approved 2015 *Campus Plan Update* prepared by Symmes Maini & McKee Associates (SMMA) in 2004, referred to hereafter as the "2004 Plan," and a subsequent alternative development plan in 2008 referred to hereafter as the "2008 Alternative." The 2015 Campus Plan Update is the second part of an update to the SCSU Master Plan prepared in 1993.

This Environmental Impact Evaluation (EIE) has been prepared pursuant to the Connecticut Environmental Policy Act (CEPA) and Sections 22a-1a-1 through 22a-1a-12 of the *Regulations of Connecticut State Agencies* (RCSA). The purpose of this EIE is to evaluate the potential environmental impacts of projects proposed as part of the Southern Connecticut State University Campus Master Plan. This EIE describes the proposed action; an analysis of the direct, indirect, and cumulative effects of the proposed action; and unavoidable adverse environmental effects, alternatives to the proposed action, and mitigation measures to offset potential adverse environmental impacts.

Proposed Action Description

SCSU is located on 172 acres between the City of New Haven and the Town of Hamden, Connecticut, approximately three miles from downtown New Haven ([Figure ES-1](#)). The campus is divided into four distinct sections by Crescent Street, Fitch Street, Farnham Avenue, and Wintergreen Avenue. SCSU has more than 700 faculty members instructing over 7,000 full-time students in 115 graduate and undergraduate programs. In addition, the University has another 5,000 part-time students participating in day or evening classes. [Figure ES-2](#) shows existing conditions on the SCSU campus.

TCSUS proposes to implement a program of improvements to the SCSU campus (the "Proposed Action"). These improvements have been released as part of an approved 2015 *Campus Plan Update* prepared by Symmes Maini & McKee Associates (SMMA) in 2004, referred to hereafter as the "2004 Plan," and a subsequent alternative development plan in 2008 referred to hereafter as the "2008 Alternative." The 2015 Campus Plan Update is the second part of an update to the SCSU Master Plan prepared in 1993.

The primary goals and objectives of the improvement program are to:

- Renovate, upgrade, replace, and expand existing facilities;
- Relocate functions in existing or new facilities in coordination with the SCSU's space utilization study;
- Unify and consolidate core uses of the campus;
- Utilize existing resources, building on existing strengths, and reinforcing the positive image of the University, community, and state; and
- Development strategy that establishes need, priority, schedule, and cost effective solutions to the University's and existing and future needs.

The Campus Plan would be implemented through various projects on campus providing new or renovated academic, administrative, athletic and residential space, new parking garages, landscaping, new quadrangles, linkage of exterior spaces throughout the campus, and demolition of some existing structures.

To implement the improvements, the 2004 Plan and the 2008 Alternative are being proposed as part of this EIE. The 2008 Alternative is considered the Preferred Alternative for the purposes of this EIE, although both the 2004 and 2008 development alternatives are considered in this document.

Purpose and Need

The purpose of the Proposed Action is to significantly improve the educational experience for SCSU students and meet the long-term academic programming goals of the Board of Trustees and the University. These academic goals include:

- Enhancing the position of SCSU as the preeminent comprehensive metropolitan public university in the State of Connecticut,
- Remaining committed to the professional preparations of graduate learners for success in their careers and in service to their communities, and
- Remaining committed to innovative teaching strategies and to scholarship and creative activity that produces knowledge, refreshes faculty expertise and amplifies teaching effectiveness.

The Proposed Action, through the Campus Master Plan, provides a development strategy that establishes need, priority, schedule, and cost-effective solutions to achieve these objectives. In a broader context, the purpose of the Proposed Action is to:

- Support the ongoing growth of the University in expanding course offerings and offering opportunities to more students.
- Meet existing and future space requirements.
- Facilitate future accreditation by the Connecticut Board of Governors for Higher Education and the New England Association of Schools and Colleges (NEASC).

The Proposed Action achieves these goals by:

- Providing phased-renovation, upgrade, replacement, and expansion of existing facilities.
- Identifying functions that should be relocated in existing or new facilities in coordination with the space utilization study.
- Outlining a guide for unification and consolidation of the campus.
- Providing a blueprint for utilizing existing resources, building on existing strengths, and reinforcing the positive image of the university, community, and state.

In addition, the Proposed Action provides a framework to guide the physical character of the campus, including:

- Preservation of the architectural scale and character of the best parts of campus while accommodating the programmatic needs of the entire campus.
- Unification of areas wherever possible through use of similar design, texture, and color, which will form a cohesive whole on campus.
- Renewal of campus facilities in a way that prioritizes the need for modern academic programs.
- Adaptation of campus space, buildings, and programs in a way which allows the University to grow and maintain itself in a changing academic world.

The Proposed Action is needed to overcome the physical limitations of the campus in its current state. A space needs analysis of the University was conducted in 2003 (Paulien and Associates, 2003). The needs analysis tabulated campus-wide and specific academic and administrative space requirements based on target goals with respect to estimated enrollments, staff increases and other relevant academic program data. As shown in Table ES-1, the space needs analysis found that SCSU has a significant shortage of space for academic and student life functions. To meet this shortage, the University would need to build more than one million square feet of new facilities as well as structured parking for up to 2,000 cars. The required new construction would nearly double the overall square footage of campus buildings.

Table ES-1. SCSU Campus Space Needs Analysis

Space Type	Fall 2000 Base Year			Fall 2015 Target Year		
	Existing ASF	Guideline ASF	Surplus (Deficit)	Existing ASF	Guideline ASF	Surplus (Deficit)
Academic	468,241	546,988	(78,747)	490,019	646,435	(156,416)
Administrative	756,565	981,066	(224,501)	878,775	1,221,776	(343,001)
University Total	1,224,806	1,528,054	(303,248)	1,368,795	1,868,795	(499,417)

Source: *Program for the Master Plan* developed by Paulien and Associates, Inc. dated May 2003, as summarized in the *Southern Connecticut State University Campus Plan Update* (Symmes Maini & McKee Associates, 2004).

The Master Plan identifies a number of other issues and needs for the SCSU campus, including:

- Lack of a well-defined entrance to the campus,

- Limited definition of the edges of the campus,
- Inadequately lighted and landscaped exterior pedestrian pathways,
- Difficult campus wayfinding,
- Lack of informal meeting space,
- Insufficient student lounge space,
- Limited on-campus exterior green space,
- A need for additional recreational and athletic practice fields,
- Improved linkage between the East and West campus areas,
- Inadequate parking facilities for faculty, staff and students,
- The need to improve the campus pedestrian shuttle system.

The current space and other deficiencies at SCSU have, and would continue to have, an impact on the quality of teaching, on research conducted, and on the range and type of courses which can be offered. As these deficiencies and needs become more acute, it is anticipated that student and faculty morale would be further affected, recruiting may be adversely impacted, and the quality of the institution as a whole may decline.

Alternatives Considered

The purpose of the Proposed Action is to significantly improve the educational experience for SCSU students and meet the long-term academic programming goals of the Board of Trustees and the University through renovation, upgrade, replacement, and expansion of existing campus facilities. The EIE identifies and compares impacts associated with various alternatives, balancing the impact of each alternative against its ability to fulfill the identified project purpose and need. In addition to the No Action Alternative, other reasonable alternative actions that could potentially fulfill the project purpose and need are considered, including:

- Alternatives Sites,
- 2004 Campus Master Plan Alternative,
- 2008 Campus Development Alternative.

No-Action Alternative

The No-Action Alternative would maintain the current operation and configuration of the SCSU campus and assumes essential routine repairs, upgrades, and maintenance. The No-Action Alternative would involve no new construction. As a result, no significant environmental impacts would occur. However, this alternative would not meet the project purpose and need and is thus not a reasonable or feasible option and, therefore, was eliminated from further consideration for the purposes of this EIE.

Alternative Sites

Due to the existing need for renovations, improvements, and replacement of campus buildings and facilities, and to the limited options for acquisition of additional property for campus expansion, no reasonably available off-site locations were identified in the 2004 Master Plan that could achieve the Master Plan objectives. However, since the 2004 Master Plan, the federally owned National Guard facility located adjacent to the campus on Wintergreen Avenue has been

identified as a site that could be reasonably available at some future date; as this property has been deemed surplus and educational institutions are given preference in the disposal process. The timing of when this property could be available is uncertain since it is dependent upon the Federal government's land surplus and disposal process. At this time, there are no other reasonably available sites for CSUS that would meet the purpose and need for SCSU.

2004 Campus Master Plan Alternative

The 2004 Plan was approved by the CSUS Board of Trustees on January 30, 2004. These improvements include the construction of approximately 772,238 gross square feet of new building space, as well as new parking garages with a combined capacity of approximately 2,000 vehicles. The proposed facilities are intended to house academic, administration, support, and student life facilities. Figure ES-3 presents the locations of currently existing facilities to be demolished as part of the 2004 Plan projects and Figure ES-4 presents the 2004 Plan

The configuration of parking, building demolition or renovation, and new construction was based on a Facilities Condition Assessment performed by VFA, Inc. in 2002 that was presented in the 2004 Campus Master Plan, as well as detailed massing studies, program fit models, and other analysis to form numerous concept alternatives which were assessed in terms of walking distance, open space and pedestrian circulation, potential on-campus shuttle bus routes, vehicular circulation, and project cost. The 2004 Campus Master Plan Alternative is the development plan that emerged from that analysis.

New construction is proposed for all areas of the campus. New building massing and location enhance the existing campus and create new quadrangles and linked exterior spaces throughout the University.

These projects include the following types of activities and facilities:

- Renovation of existing buildings,
- New construction,
- Demolition of existing facilities,
- New parking garage for 2,000 cars,
- Athletic fields.

The major elements of the 2004 Plan program are summarized below. These projects were designed to address the existing shortfall of facility space to meet the needs of existing students and faculty and to provide for the anticipated future enrollment.

- Construction of a new academic building planned between Pelz Gymnasium and Jennings Hall.
- Demolition of the old Student Center and Seabury Hall and construction of a new academic building and a new campus entrance on the site.
- Construction of a new facility for the Department of Health & Human Services adjacent to the existing parking garage.
- Construction of a new Student Services Building spanning Farnham Avenue.
- Construction of the Computing Center, located on the site of Earl Hall.

- Addition to the Moore Field House, linked to a new 1,000 car parking garage. This will include a new public entrance to Moore along the east façade, as well as a new entry plaza and ticket office.
- Expansion of Connecticut Hall and the construction of the new Conference Center. The expansion to Connecticut Hall will add 38,530 square feet,
- Construction of a new fitness center, sharing a building with the Student Health Center on Wintergreen Street at the northern edge of the new quadrangle formed by the closing of Farnham Avenue.
- Construction of four new parking garages; a 500 car garage adjacent to the Computing Center, two 500-car parking garages along Crescent Street, and a 1,000 car garage adjacent to the Moore Field House.

Pedestrian Circulation

- Construction of a new pedestrian circulation route along the new inner green spaces parallel to Fitch Street.
- Renovation of the existing “pond-side” pathway with wider paving, new lighting and landscaping, and periodic seating areas overlooking the pond. It will end at the new Center for the Arts.
- Construction of pedestrian pathways along the edges of the new Farnham quadrangle.
- Renovation of the street and associated pedestrian crossing to include a “table top” crossing for traffic calming.

Landscape and Open Space

- Creation of a new quadrangle with the closure of Farnham Avenue.
- The edges of campus will be landscaped with a limited palette of trees, shrubs, low walls, and fences to define the campus boundaries.
- Expansion of the playing fields along the edge of North campus to provide additional areas for practice and recreational sports.
- Construction of a new major pedestrian circulation route along the inner green spaces parallel to Fitch Street from Davis Hall to the new quadrangle.
- Renovation of the “pond-side” pathway, with wider paving, new lighting, landscaping, and seating areas overlooking the pond.

2008 Campus Master Plan Alternative

To address evolving priorities for SCSU and concerns of neighboring residents raised during the early public scoping process for the EIE in the fall of 2005, the sponsoring and participating agencies developed with SMMA alternative schemes for the campus, referred to hereafter as the “2008 Alternative.”

The 2008 Campus Master Plan Alternative is the Preferred Alternative in this EIE. Figures ES-5 and ES-6 present proposed building demolition and construction projects proposed by the 2008 Plan. This alternative has not been approved by the CSUS Board of Trustees and is the development concept recommended in the 2008 Campus Master Plan by SMMA (2008), from which the majority of the description below has been condensed.

This alternative is the result of a revisiting of the 2004 master plan for 2015 to address changes that have occurred. This alternative considers neighborhood concerns that arose from the previous plan during the early public scoping process for the EIE in the fall of 2005, immediate space needs, and the completion of projects that were ongoing at the time the previous plan was completed. The results of a 2006 parking and traffic study by Purcell Associates and updated Connecticut Workforce Initiatives were also incorporated into the concept.

The 2008 plan includes numerous changes to the East Campus. Similar to the 2004 Plan, a new science quadrangle would be created with a new science building, health and human services building, and academic building. The science and academic buildings would be located along Fitch Street, creating a continuous building front that breaks only at a new formal entrance to campus at the administrative wing of the existing Engleman Hall. A renovated Jennings Hall would share a new formal entrance with Morrill Hall, which together will create a quadrangle enclosed on three sides.

Renovations to the lobby for the Pelz gymnasium will take advantage of a drop-off area for the Health and Human Services building and of connections to a new 600 car parking garage that will be located behind the Fitch Street garage. A new parking garage with 250 spaces will be located on Crescent Street and screened from view from the road by a new Fine Arts building. Seabury Hall and the majority of University Hall (the old student center) will be demolished, with the business school being relocated into the remaining, renovated portion of the latter.

On the western portion of campus, four new residence halls will be constructed to replace existing dormitories and provide additional housing. The existing dormitories in this area will be demolished to accommodate the new structures. A new Student Wellness Center will be constructed adjacent to the southernmost of these new residence halls adjacent to the residence hall parking garage that was constructed within the last five years. Granoff Hall will be demolished and replaced with a Data Center, and Information Technologies will be consolidated in this area along Wintergreen Ave. Orlando House will be relocated to facilitate construction of one of the new residence halls. Moore Field House will be expanded with an addition and a 1,200 space parking garage. The parking garage will include a Police and Public Safety building along its edge.

The 2008 Campus Master Plan Alternative was carried forward for additional analysis in this EIE because it best meets the project purpose and need by:

- Meeting existing and future space requirements.
- Providing phased-renovation, upgrade, replacement, and expansion of existing facilities.
- Unifying and consolidating key areas and functions of the campus.
- Utilizing existing resources, building on existing strengths, and reinforcing the positive image of the university, community, and state.

Benefits and Impacts

The Proposed Action is intended to enable Southern Connecticut State University to meet current and projected academic and research needs through providing additional educational, research,

administrative, and campus life facilities for students, faculty, and staff. Through these projects, the Proposed Action will improve the educational experience provided by SCSU, which is a valuable resource for in-state students seeking an affordable, quality education. The project will also relieve existing parking congestion on and near campus by providing adequate parking for existing and future campus needs, and better define the bounds of campus, improving the relationship between SCSU and the surrounding neighborhood.

Potential adverse impacts include increased traffic on local streets, increased stormwater pollution and peak discharge rates, flooding impacts associated with construction in a 100-year floodplain, increased generation of laboratory and other facility waste streams. These impacts will be mitigated through measures presented in this EIE as well as additional mitigation measures that will be identified and/or refined following completion of ongoing campus planning and during subsequent permitting. Additionally, Orlando House will be moved to make room for new construction. Anticipated impacts are proposed mitigation measures to address these impacts are summarized in Table ES-2.

The proposed project will not request in negative impacts to air quality, noise levels, critical species of plants or animals and their habitat, archaeological resources, groundwater, wetlands, or wildlife and vegetation.

Table ES-2. Summary of Impacts and Mitigation

Resource Category	Alternative.	Anticipated Impacts	Proposed Mitigation
Traffic and Parking	2004	<ul style="list-style-type: none"> • Potential lane closures and parking displacement during construction • Increased heavy vehicle traffic during construction • Increased vehicle trips • 	<ul style="list-style-type: none"> • Implement routing plan for construction vehicles • Optimize intersection configuration and traffic signal timing • Re-evaluate parking garage permit system and pricing structure • Re-evaluate campus shuttle routes • Other mitigation as determined through the State Traffic Commission process
	2008	<ul style="list-style-type: none"> • Potential lane closures and parking displacement during construction • Increased heavy vehicle traffic during construction • Increased vehicle trips • Decline in Level of Service at nearby intersections to unacceptable levels • Redirect vehicles that can no longer use Farnham Ave following closure 	<ul style="list-style-type: none"> • Implement routing plan for construction vehicles • Optimize intersection configuration and traffic signal timing • Re-evaluate parking garage permit system and pricing structure • Re-evaluate campus shuttle routes • For Wintergreen Garage Only: <ul style="list-style-type: none"> ○ Fitch Street at Blake Street: Restripe the Blake Street westbound approach in order to provide a right turn lane. ○ Fitch Street at Arch Street and Fairview Avenue: Provide a northbound right turn lane on the Fitch Street approach. This will require widening along the west side of the approach. ○ Blake Street at Farnham Avenue: Provide a second approach lane on the Farnham Avenue southbound. This will require restriping in order to eliminate the existing parking lane in the vicinity of the intersection. ○ Wintergreen Avenue at Wintergreen Garage Driveway: Widen Wintergreen Avenue east of the driveway in order to provide a westbound right turn lane. ○ Fitch Street at Wintergreen Avenue: Optimize signal timing in order to provide acceptable LOS on all approaches. ○ Crescent Avenue at Ella Grasso Boulevard: Optimize signal timing in order to provide acceptable LOS on all approaches. • Other mitigation as determined through the State Traffic Commission process

Resource Category	Alternative.	Anticipated Impacts	Proposed Mitigation
Air Quality	2004	<ul style="list-style-type: none"> Construction-related impacts include localized air quality impacts from emissions from construction equipment engines and fugitive dust 	<ul style="list-style-type: none"> Implement construction best management practices to limit fugitive dust impacts. Use of emission control devices and/or clean fuels for diesel powered non-road construction equipment. Proper operation and maintenance of construction equipment. Incorporate the above mitigation measures into contract specifications. Use energy efficient equipment and materials in new buildings and alternative technologies to offset electrical usage and greenhouse gas emissions. Construction best management practices to limit fugitive dust impacts Prohibition of excessive construction equipment idling
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Noise	2004	<ul style="list-style-type: none"> Potential impacts from HVAC or other mechanical equipment Construction-related impacts are elevated noise levels associated with construction equipment and demolition and construction activities Increase in noise resulting from construction activity 	<ul style="list-style-type: none"> Proper maintenance of construction equipment Advance notification to nearby receptors if construction activities may produce temporary excessive noise levels Comply with Connecticut's Noise regulations. Limit construction work to daytime hours (7 a.m. to 10 p.m. local time). Incorporate the above mitigation measures into contract specifications. Site HVAC or other mechanical equipment away from sensitive receptors and provide shielding such as acoustical enclosures or barriers.
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Water Resources	2004	<ul style="list-style-type: none"> Disturbance of soil during construction with potential to result in erosion and sedimentation Increase in impervious surface with associated increase in stormwater peak discharges and pollutant loadings Construction of residential uses in 100-year floodplain 	<ul style="list-style-type: none"> Develop and implement a construction-phase erosion and sediment control plan and associated measures consistent with the state and local regulatory requirements. Incorporate sustainable site design elements and low impact development (LID) practices in the stormwater management system and site designs. Implement a stormwater management system to address a range of stormwater pollutants, including bacteria. Incorporate stormwater management measures consistent with campus-wide drainage master plan (under development). Incorporate oil/grit separators into interior parking garage drainage systems, prior to discharge to the sanitary sewer system. Elevate living space 1 foot above the 100-year flood elevation Floodproof service infrastructure Provide compensatory flood storage as necessary
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Wetlands	2004	<ul style="list-style-type: none"> Disturbance of soil during construction with potential to result in erosion and sedimentation with potential for discharge to wetlands 	<ul style="list-style-type: none"> Construction sediment and erosion controls
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan

Resource Category	Alternative.	Anticipated Impacts	Proposed Mitigation
Water Quality	2004	<ul style="list-style-type: none"> Disturbance of soil during construction with potential to result in erosion and sedimentation Increase in impervious surface with associated increase in stormwater peak discharges and pollutant loadings 	<ul style="list-style-type: none"> Construction sediment and erosion controls Incorporate sustainable site design elements and low impact development (LID) practices in the stormwater management system and site designs Stormwater management measures consistent with campus-wide drainage master plan (under development) Incorporate oil/grit separators into interior parking garage drainage systems, prior to discharge to the sanitary sewer system.
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Groundwater Quality and Resources	2004	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
	2008	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
Endangered, Threatened, or Special Concern Species or Habitats	2004	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
	2008	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
Fish and Wildlife, Habitats, and Ecosystems	2004	<ul style="list-style-type: none"> Temporary displacement of urban wildlife from landscaped habitat during construction 	<ul style="list-style-type: none"> None proposed
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> None proposed
Historic and Cultural Resources	2004	<ul style="list-style-type: none"> Consolidation of buildings of historical significance on campus through moving Orlando House across Farnham Ave to be located near Admissions House and Lang Social Work House 	<ul style="list-style-type: none"> Memorandum of Understanding (MOU) with SHPO
	2008	<ul style="list-style-type: none"> Orlando House located within footprint of proposed residential building 	<ul style="list-style-type: none"> Relocate Orlando House and MOU with SHPO
Visual Resources	2004	<ul style="list-style-type: none"> Improved visual impact of campus Improved distinction of campus boundary 	<ul style="list-style-type: none"> Landscaping consistent with campus-wide landscape master plan (under development)
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Toxic or Hazardous Materials	2004	<ul style="list-style-type: none"> Construction could expose areas of contaminated soil that are currently unidentified Construction-related debris from the demolition and renovation of campus buildings may contain lead-based paint and asbestos containing materials. New laboratories will increase quantity of hazardous chemicals on campus and increase quantity of hazardous waste produced by campus 	<ul style="list-style-type: none"> Implement a protocol for sampling and analysis of potentially contaminated soil Conduct pre-demolition surveys for asbestos-containing materials prior to building demolition or renovation. Manage hazardous materials, wastes, and demolition debris following applicable regulations
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan

Resource Category	Alternative.	Anticipated Impacts	Proposed Mitigation
Energy Use and Conservation	2004	<ul style="list-style-type: none"> Increased building space could result in increased energy usage Potential beneficial impacts by demolishing older buildings and replacing with newer, more energy efficient buildings. 	<ul style="list-style-type: none"> Incorporate energy efficient design elements consistent with LEED and U.S. Green Building Council principles. Obtain LEED certification for buildings Building renovation to increase building efficiency Use of natural light Participation in Utility energy efficiency programs
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Public Health and Safety	2004	<ul style="list-style-type: none"> University Police and Student Health facilities currently undersized Increased demand on undersized facilities 	<ul style="list-style-type: none"> <i>Provide additional space for police and health clinic</i> Additional "blue light" callboxes on campus
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> New police and wellness buildings to meet projected campus needs Additional "blue light" callboxes on campus
Consistency with Planning	2004	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
	2008	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
Utilities and Services	2004	<ul style="list-style-type: none"> Adequate capacity for most utilities. Some sewer service to existing buildings may be undersized for existing uses. Generation of construction and demolition debris during construction/renovation 	<ul style="list-style-type: none"> Proposed connection to water, sewer, and storm systems should be coordinated with appropriate City departments prior to construction Increases in peak stormwater discharge rates should be attenuated Confirmation of sewer line capacity through metering of existing sanitary flows Construction and demolition debris will be segregated on-site and reused or recycled to the extent possible to reduce the need for landfill disposal. Include minimum reuse/recycling goals in construction contracts. Include design provisions to allow for source separation of recyclable materials for project buildings. Use building construction materials with recycled content for new and renovated buildings.
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan

Potential Certificates, Permits, and Approvals

Table ES-3 lists the certificates, permits, and approvals that may be required for completion of the Proposed Action. Additional certificates, permit, and approvals may be identified following the CEPA process, pending final design of each component of the project.

Table ES-3. List of Certificates, Permits, and Approvals

Permit/Approval	Issuing Authority	Category	Comments
New Source Review Permit	CTDEP	Air Quality	Required for emissions released to the air from new and modified major stationary sources of air pollution.
General Permit to Limit Potential to Emit	CTDEP	Air Quality	Resubmit registration under General Permit for new source.

Permit/Approval	Issuing Authority	Category	Comments
General Permit for Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activities	CTDEP	Hydrology	Required if total site disturbance during construction exceeds 1 acre
Flood Management Certification	CTDEP	Flood Hazard Areas and Storm Drainage	Required for site development affecting drainage or work in floodplain
Asbestos Abatement Notification	CTDPH	Environmental Risk	Asbestos abatement
Underground Storage Tank Registration and Closure Report	CTDEP	Demolition Permit	
Laboratory Wastewater	CTDEP	Utilities	
Certificate of Operation for a Major Traffic Generator	State Traffic Commission	Traffic and Parking	Development >100,000 SF or 200 parking spaces
Inland Wetlands and Watercourses Permit	CTDEP	Wetlands and Water Resources	Required for state actions affecting wetlands or watercourses. Not currently anticipated to be necessary.
Individual Wastewater Discharge Permit	CTDEP	Utilities	Potentially required for discharge of construction dewatering wastewater, with potential for exceeding water quality standards, to a surface water or treatment facility
Sewer Construction/Connection Permit	New Haven Water Pollution Control Authority	Utilities	Required for connection to existing sewer system
General Permit for the Discharge of Domestic Sewage	CTDEP	Utilities	Required for discharges of domestic sewage that are >50,000 GPD or >5% of receiving POTW design flow
General Permit for Hydrostatic Testing Wastewater	CTDEP	Utilities	Required for hydrostatic pressure testing of pipelines
General Permit for Miscellaneous Discharges of Sewer Compatible Wastewater	CTDEP	Utilities	Required for the discharge of various forms of wastewater including building maintenance wastewater and sprinkler system wastewater
Special Waste Authorization	Solid Waste	CT DEP	Disposal of demolition waste or contaminated soils

Conclusion

The Proposed Action is intended to enable Southern Connecticut State University to meet current and projected academic and research needs through providing additional educational, research, administrative, and campus life facilities for students, faculty, and staff. Through these projects, the Proposed Action will improve the educational experience provided by SCSU, which is a valuable resource for in-state students seeking an affordable, quality education. The project will also relieve existing parking congestion on and near campus by providing adequate parking for existing and future campus needs, and better define the bounds of campus, improving the relationship between SCSU and the surrounding neighborhood. The two alternatives considered

in this EIE have similar impacts in each resource category, since the differences are generally limited to alternative building and parking configuration. The 2008 Alternative is the Preferred Alternative since it better meets anticipated campus needs through 2015.

Potential adverse impacts include increased traffic on local streets, increased stormwater pollution and peak discharge rates, flooding impacts associated with construction in a 100-year floodplain, increased generation of laboratory and other waste streams. These potential impacts will be mitigated through measures presented in this EIE, as well as additional mitigation measures that will be identified and/or refined following completion of ongoing campus planning (i.e., campus drainage master plan) and subsequent permitting (i.e., additional traffic impact studies in support of a master plan STC certificate). Comments received during the public review period for the EIE will be considered in making a final decision on the Proposed Action.

A public hearing is scheduled for March 5, 2009 at 7:00PM at the SCSU's Michael J. Adanti Student Center Theater (Plaza Level), 501 Crescent Street, New Haven.

Public Involvement

An electronic notice for this EIE was published in the Connecticut Council on Environmental Quality (CEQ) Environmental Monitor on September 25, 2005. A Public Scoping Meeting was held in Engleman Hall on the SCSU campus at Thursday, October 6, 2005. Comments were received from the Connecticut Department of Environmental Protection and the public. Comments received, as well as a transcript of the meeting and a copy of the presentation given at the meeting are presented in Appendix A.

EIE Distribution List

The following state and local offices will receive copies of this EIE for review and for availability by the public:

- Connecticut Department of Environmental Protection
- Connecticut Department of Public Health
- Council on Environmental Quality
- Connecticut Department of Public Health
- Connecticut Department of Transportation
- Connecticut Office of Policy and Management
- Connecticut Commission on Culture and Tourism/State Historic Preservation Office
- Connecticut State Traffic Commission
- New Haven City Clerk's Office
- New Haven City Planning
- New Haven City Traffic Department
- New Haven Main Branch Free Public Library
- Hamden Town Clerk's Office
- Hamden Town Planning Department
- Hamden Miller Memorial Central Library
- SCSU Buley Library

1 INTRODUCTION

This Environmental Impact Evaluation (EIE) has been prepared as part of the environmental review process pursuant to the Connecticut Environmental Policy Act (CEPA) and Sections 22a-1a-1 through 22a-1a-12 of the *Regulations of Connecticut State Agencies* (RCSA). The purpose of this EIE is to evaluate the potential environmental impacts of projects proposed as part of the Southern Connecticut State University Campus Master Plan. This EIE describes the proposed action; an analysis of the direct, indirect, and cumulative effects of the proposed action; and unavoidable adverse environmental effects, alternatives to the proposed action, and mitigation measures to offset potential adverse environmental impacts.

1.1 Description of the Proposed Action

Southern Connecticut State University (SCSU) is located on 172 acres between the City of New Haven and the Town of Hamden, Connecticut, approximately three miles from downtown New Haven ([Figure 1-1](#) and [Figure 1-2](#)). The campus is divided into four distinct sections by Crescent Street, Fitch Street, Farnham Avenue, and Wintergreen Avenue. SCSU has more than 700 faculty members instructing over 7,000 full-time students in 115 graduate and undergraduate programs. In addition, the University has another 5,000 part-time students participating in day or evening classes. [Figure 1-3](#) shows existing conditions on the SCSU campus.

The Board of Trustees for the Connecticut State University System (CSUS) (sponsoring agency), in cooperating with the Department of Public Works (DPW) and SCSU (participating agencies), proposes to implement a program of improvements to the SCSU campus (the “Proposed Action”). These improvements have been released as part of an approved 2015 *Campus Plan Update* prepared by Symmes Maini & McKee Associates (SMMA) in 2004, referred to hereafter as the “2004 Plan,” and a subsequent alternative development plan in 2008 referred to hereafter as the “2008 Alternative.” The 2015 Campus Plan Update is the second part of an update to the SCSU Master Plan prepared in 1993. The primary goals and objectives of the improvement program are to:

- Renovate, upgrade, replace, and expand existing facilities;
- Relocate functions in existing or new facilities in coordination with the SCSU’s space utilization study;
- Unify and consolidate core uses of the campus;
- Utilize existing resources, building on existing strengths, and reinforcing the positive image of the University, community, and state; and
- Development strategy that establishes need, priority, schedule, and cost effective solutions to the University’s and existing and future needs.

The Campus Plan would be implemented through various projects on campus providing new or renovated academic, administrative, athletic and residential space, new parking garages, landscaping, new quadrangles, linkage of exterior spaces throughout the campus, and demolition of some existing structures.

To implement the improvements, the 2004 Plan and the 2008 Alternative are being proposed as part of this EIE. The 2008 Alternative is considered the Preferred Alternative for the purposes of this EIE, although both the 2004 and 2008 development alternatives are considered in this document.

1.2 Purpose and Need

The purpose of the Proposed Action is to significantly improve the educational experience for SCSU students and meet the long-term academic programming goals of the Board of Trustees and the University. These academic goals include:

- Enhancing the position of SCSU as the preeminent comprehensive metropolitan public university in the State of Connecticut,
- Remaining committed to the professional preparations of graduate learners for success in their careers and in service to their communities, and
- Remaining committed to innovative teaching strategies and to scholarship and creative activity that produces knowledge, refreshes faculty expertise and amplifies teaching effectiveness.

The Proposed Action, through the Campus Master Plan, provides a development strategy that establishes need, priority, schedule, and cost-effective solutions to achieve these objectives. In a broader context, the purpose of the Proposed Action is to:

- Support the ongoing growth of the University in expanding course offerings and offering opportunities to more students.
- Meet existing and future space requirements.
- Facilitate future accreditation by the Connecticut Board of Governors for Higher Education and the New England Association of Schools and Colleges (NEASC).

The Proposed Action achieves these goals by:

- Providing phased-renovation, upgrade, replacement, and expansion of existing facilities.
- Identifying functions that should be relocated in existing or new facilities in coordination with the space utilization study.
- Outlining a guide for unification and consolidation of the campus.
- Providing a blueprint for utilizing existing resources, building on existing strengths, and reinforcing the positive image of the university, community, and state.

In addition, the Proposed Action provides a framework to guide the physical character of the campus, including:

- Preservation of the architectural scale and character of the best parts of campus while accommodating the programmatic needs of the entire campus.
- Unification of areas wherever possible through use of similar design, texture, and color, which will form a cohesive whole on campus.

- Renewal of campus facilities in a way that prioritizes the need for modern academic programs.
- Adaptation of campus space, buildings, and programs in a way which allows the University to grow and maintain itself in a changing academic world.

The Proposed Action is needed to overcome the physical limitations of the campus in its current state. A space needs analysis of the University was conducted in 2003 (Paulien and Associates, 2003). The needs analysis tabulated campus-wide and specific academic and administrative space requirements based on target goals with respect to estimated enrollments, staff increases and other relevant academic program data. As shown in Table 1-1, the space needs analysis found that SCSU has a significant shortage of space for academic and student life functions. To meet this shortage, the University would need to build more than one million square feet of new facilities as well as structured parking for up to 2,000 cars. The required new construction would nearly double the overall square footage of campus buildings.

Table 1-1. SCSU Campus Space Needs Analysis

Space Type	Fall 2000 Base Year			Fall 2015 Target Year		
	Existing ASF	Guideline ASF	Surplus (Deficit)	Existing ASF	Guideline ASF	Surplus (Deficit)
Academic	468,241	546,988	(78,747)	490,019	646,435	(156,416)
Administrative	756,565	981,066	(224,501)	878,775	1,221,776	(343,001)
University Total	1,224,806	1,528,054	(303,248)	1,368,795	1,868,795	(499,417)

Source: *Program for the Master Plan* developed by Paulien and Associates, Inc. dated May 2003, as summarized in the *Southern Connecticut State University Campus Plan Update* (Symmes Maini & McKee Associates, 2004).

The Master Plan identifies a number of other issues and needs for the SCSU campus, including:

- Lack of a well-defined entrance to the campus,
- Limited definition of the edges of the campus,
- Inadequately lighted and landscaped exterior pedestrian pathways,
- Difficult campus wayfinding,
- Lack of informal meeting space,
- Insufficient student lounge space,
- Limited on-campus exterior green space,
- A need for additional recreational and athletic practice fields,
- Improved linkage between the East and West campus areas,
- Inadequate parking facilities for faculty, staff and students,
- The need to improve the campus pedestrian shuttle system.

The current space and other deficiencies at SCSU have, and would continue to have, an impact on the quality of teaching, on research conducted, and on the range and type of courses which can be offered. As these deficiencies and needs become more acute, it is anticipated that student and faculty morale would be further affected, recruiting may be adversely impacted, and the quality of the institution as a whole may decline.

2 ALTERNATIVES ANALYSIS

The purpose of the Proposed Action is to significantly improve the educational experience for SCSU students and meet the long-term academic programming goals of the Board of Trustees and the University through renovation, upgrade, replacement, and expansion of existing campus facilities. The EIE identifies and compares impacts associated with various alternatives, balancing the impact of each alternative against its ability to fulfill the identified project purpose and need. In addition to the No Action Alternative, other reasonable alternative actions that could potentially fulfill the project purpose and need are considered, including:

- Alternatives Sites,
- 2004 Campus Master Plan Alternative,
- 2008 Campus Development Alternative.

2.1 No-Action Alternative

The No-Action Alternative would maintain the current operation and configuration of the SCSU campus and assumes essential routine repairs, upgrades, and maintenance. The No-Action Alternative would involve no new construction. As a result, no significant environmental impacts would occur. The existing campus would remain in its current conditions, current problems would not be alleviated, and identified needs would remain unaddressed.

The No-Action Alternative would not meet the project purpose and need. It would not result in the physical improvements to the campus that are needed to allow the University to fulfill its mission. The No-Action Alternative is not a reasonable or feasible option and, therefore, was eliminated from further consideration for the purposes of this EIE.

2.2 Alternative Sites

Controlled Sites

Other than the existing campus, the CSUS and the University do not have available sites for the Master Plan projects that are under its control, care, and custody. However, alternative sites within the existing campus were evaluated through the master planning process and are described in more detail in Sections 2.3 and 2.4 below.

Reasonably Available Sites

Due to the existing need for renovations, improvements, and replacement of campus buildings and facilities, and to the limited options for acquisition of additional property for campus expansion, no reasonably available off-site locations were identified in the 2004 Master Plan that could achieve the Master Plan objectives. However, since the 2004 Master Plan, the federally owned National Guard facility located adjacent to the campus on Wintergreen Avenue has been identified as a site that could be reasonably available at some future date; as this property has been deemed surplus and educational institutions are given preference in the disposal process.

The timing of when this property could be available is uncertain since it is dependent upon the Federal government's land surplus and disposal process. At this time, there are no other reasonably available sites for CSUS that would meet the purpose and need for SCSU.

2.3 2004 Campus Master Plan Alternative

The 2004 Plan was approved by the CSUS Board of Trustees on January 30, 2004. This plan outlines an alternative arrangement of future campus development and funding requests to the Board of Trustees (SMMA, 2004). The 2004 Plan includes improvements required to accommodate the University needs through 2015. These improvements include the construction of approximately 772,238 gross square feet of new building space, as well as new parking garages with a combined capacity of approximately 2,000 vehicles. The proposed facilities are intended to house academic, administration, support, and student life facilities. Figure 2-1 presents the locations of currently existing facilities to be demolished as part of the 2004 Plan projects and Figure 2-2 presents the 2004 Plan

For comparison to the 2008 Alternative as the Preferred Alternative in this EIE, the 2004 Campus Master Plan presents an alternative that is useful for comparison. Despite the 2004 Plan being approved by the Board of Trustees, it contains elements that are not currently proposed for implementation. However, the 2004 Plan Alternative addressed many of the University needs and goals through 2015, which also served as the basis for the development of the 2008 Alternative. .

The configuration of parking, building demolition or renovation, and new construction was based on a Facilities Condition Assessment performed by VFA, Inc. in 2002 that was presented in the 2004 Campus Master Plan, as well as detailed massing studies, program fit models, and other analysis to form numerous concept alternatives which were assessed in terms of walking distance, open space and pedestrian circulation, potential on-campus shuttle bus routes, vehicular circulation, and project cost. The 2004 Campus Master Plan Alternative is the development plan that emerged from that analysis.

In terms of land use, both the 2004 Plan and the 2008 Alternative consolidates and organizes each of the primary campus uses. Academic functions are located on the East Campus, centered around Englemen, Buley Library and several new academic buildings. Student Life functions are consolidated on the West Campus, focused around the existing residence halls, and the food services are housed in a renovated and expanded Connecticut Hall, a new Administration and Student Services building and a new Fitness Center. Varsity and recreational sports facilities are located north of Wintergreen Avenue clustered around an expanded Moore Field House.

The 2004 Plan limits the number of campus entrances on Fitch Street, and establishes one main entrance adjacent to the Administrative wing of Engleman Hall. At the northern edge of the East campus, vehicular entries direct traffic into the existing parking garage. On Crescent Street, the vehicular entrance is shifted to align with Ella Grasso Boulevard. Lyman Center and the two new parking garages are accessed from this entrance. Internal vehicular circulation between buildings on the East Campus is limited to service/emergency vehicles and for ADA access.

campus. Expansion of the playing fields along the edge of North campus provides additional areas needed for varsity practice and recreational sports.

New construction is proposed for all areas of the campus. New building massing and location enhance the existing campus and create new quadrangles and linked exterior spaces throughout the University.

These projects include the following types of activities and facilities:

- Renovation of existing buildings,
- New construction,
- Demolition of existing facilities,
- New parking garage for 2,000 cars,
- Athletic fields.

The major elements of the 2004 Plan program are summarized below. These projects were designed to address the existing shortfall of facility space to meet the needs of existing students and faculty and to provide for the anticipated future enrollment.

- Construction of a new academic building planned between Pelz Gymnasium and Jennings Hall.
- Demolition of the old Student Center and Seabury Hall and construction of a new academic building and a new campus entrance on the site.
- Construction of a new facility for the Department of Health & Human Services adjacent to the existing parking garage.
- Construction of a new Student Services Building spanning Farnham Avenue.
- Construction of the Computing Center, located on the site of Earl Hall.
- Addition to the Moore Field House, linked to a new 1,000 car parking garage. This will include a new public entrance to Moore along the east façade, as well as a new entry plaza and ticket office.
- Expansion of Connecticut Hall and the construction of the new Conference Center. The expansion to Connecticut Hall will add 38,530 square feet,
- Construction of a new fitness center, sharing a building with the Student Health Center on Wintergreen Street at the northern edge of the new quadrangle formed by the closing of Farnham Avenue.
- Construction of four new parking garages; a 500 car garage adjacent to the Computing Center, two 500-car parking garages along Crescent Street, and a 1,000 car garage adjacent to the Moore Field House.

Pedestrian Circulation

- Construction of a new pedestrian circulation route along the new inner green spaces parallel to Fitch Street.
- Renovation of the existing “pond-side” pathway with wider paving, new lighting and landscaping, and periodic seating areas overlooking the pond. It will end at the new Center for the Arts.

- Construction of pedestrian pathways along the edges of the new Farnham quadrangle.
- Renovation of the street and associated pedestrian crossing to include a “table top” crossing for traffic calming.

Landscape and Open Space

- Creation of a new quadrangle with the closure of Farnham Avenue.
- The edges of campus will be landscaped with a limited palette of trees, shrubs, low walls, and fences to define the campus boundaries.
- Expansion of the playing fields along the edge of North campus to provide additional areas for practice and recreational sports.
- Construction of a new major pedestrian circulation route along the inner green spaces parallel to Fitch Street from Davis Hall to the new quadrangle.
- Renovation of the “pond-side” pathway, with wider paving, new lighting, landscaping, and seating areas overlooking the pond.

2.4 2008 Campus Master Plan Alternative

To address evolving priorities for SCSU and concerns of neighboring residents raised during the early public scoping process for the EIE in the fall of 2005, the sponsoring and participating agencies developed with SMMA alternative schemes for the campus, referred to hereafter as the “2008 Alternative.”

The 2008 Campus Master Plan Alternative as presented below is the Preferred Alternative in this EIE. Figures 2-3 and 2-4 present proposed building demolition and construction projects proposed by the 2008 Plan. This alternative has not been approved by the CSUS Board of Trustees and is the development concept recommended in the 2008 Campus Master Plan by SMMA (2008), from which the majority of the description below has been condensed. This alternative is the result of a revisiting of the 2004 master plan for 2015 to address changes that have occurred. This alternative considers neighborhood concerns that arose from the previous plan during the early public scoping process for the EIE in the fall of 2005, immediate space needs, and the completion of projects that were ongoing at the time the previous plan was completed. The results of a 2006 parking and traffic study by Purcell Associates and updated Connecticut Workforce Initiatives were also incorporated into the concept.

The 2008 plan includes numerous changes to the East Campus. Similar to the 2004 Plan, a new science quadrangle would be created with a new science building, health and human services building, and academic building. The science and academic buildings would be located along Fitch Street, creating a continuous building front that breaks only at a new formal entrance to campus at the administrative wing of the existing Engleman Hall. A renovated Jennings Hall would share a new formal entrance with Morrill Hall, which together will create a quadrangle enclosed on three sides.

Renovations to the lobby for the Pelz gymnasium will take advantage of a drop-off area for the Health and Human Services building and of connections to a new 600 car parking garage that will be located behind the Fitch Street garage.

A new parking garage with 250 spaces would be located on Crescent Street and screened from view from the road by a new Fine Arts building. Seabury Hall and the majority of University Hall (the old student center) would be demolished, with the business school being relocated into the remaining, renovated portion of the latter.

On the western portion of campus, four new residence halls would be constructed to replace existing dormitories and provide additional housing. The existing dormitories in this area would be demolished to accommodate the new structures. A new Student Wellness Center would be constructed adjacent to the southernmost of these new residence halls adjacent to the residence hall parking garage that was constructed within the last five years.

Granoff Hall would be demolished and replaced with a Data Center, and Information Technologies would be consolidated in this area along Wintergreen Ave. Orlando House would be relocated to facilitate construction of one of the new residence halls. Moore Field House would be expanded with an addition and a 1,200 space parking garage. The parking garage would include a Police and Public Safety building along its edge.

2008 Development Alternative

The 2008 campus development alternative includes the following types of activities and facilities:

- Demolition of existing facilities,
- Renovation of existing buildings,
- New building construction,
- New parking garages,
- Athletic fields.

The major elements of the campus development program are summarized below. These projects were designed to address the existing shortfall of facility space to meet the needs of existing students and faculty and to provide for the anticipated future enrollment. The projects would be implemented over a period of approximately 10 years and consist of:

1. *Moore Field House Garage / Police & Public Safety:* A 1,200 car garage would be built adjacent to Moore Field House to serve commuter students and athletic events on campus. The Police and Public Safety building (11,880 GSF) would be built along its edge closest to Moore Field House, taking advantage of the high visibility the location offers, its proximity to residential areas and campus events, and the parking it provides. Dedicated entrance routes provide ease of access from Wintergreen Avenue.
2. *Davis Parking Garage:* The 600 car parking garage would provide additional parking in the academic core of the campus and compensate for parking spaces lost during and after the construction of the science buildings and quadrangle along Fitch Street. Four levels of parking would be nestled into the existing grade with unhindered connections between Davis Hall and the rest of the campus. It takes advantage of existing roads and limits parking to the campus periphery.

3. *Science Building:* The new approximately 102,000 GSF Science building would provide much needed upgrades to the science facilities on campus, including teaching laboratories, classrooms and faculty office space, establish a new image for the University along Fitch Street and create a new quadrangle with Pelz Gymnasium, Davis, Jennings and Morrill Halls. Programs currently housed in Jennings Hall would be among the users of the new building.
4. *Jennings Hall:* Extensive renovations are planned to upgrade the facilities and quality of academic instruction spaces in the building. A new entrance shared with Morrill Hall and central atrium redefines the interior circulation.
5. *Data Center:* Consolidation of the campus Data Center would be made possible in a 18,788 GSF new building replacing Granoff Hall. Along with the IT building, the Data Center maintains one edge of the reorganized residential quadrangle with frontage on Wintergreen Avenue.
6. *Fine Arts / Ella Grasso Garage:* The demolition of the outdated 19,276 GSF Seabury Hall and partial demolition of University Hall, the old student center, would create a site along Crescent Street for a new 94,620 GSF Fine Arts building to replace Earl Hall (60,226 GSF) and eliminate the unsuitable faculty offices in the Lyman Center. The Fine Arts building, in conjunction with a screened 250 car parking garage would define the eastern-most limit of the campus along Crescent Street.
7. *Health & Human Services Building:* Located adjacent to the new Science Building, Pelz Gymnasium and Jennings Hall, the new 81,017 GSF facility for the Department of Health & Human Services would include specialty classrooms, faculty offices and outpatient clinical areas. The location adjacent to the existing Pelz drop-off provides convenient access for clients visiting the clinics. The building also helps to define the science quadrangle and provide linkage between Pelz and the rest of the East Campus.
8. *Academic Classroom Building:* The new 40,443 GSF Academic Classroom building would provide additional space for program expansion in the future including state-of-the-art instructional space. An extension of the science building, it anchors the edge of the science quad as well as the main campus entrance and drop-off with Buley Library.
9. *CILS Building (plus Administration IT Space):* A new 46,765 GSF School of Communication, Information, and Library Science (CILS) building and Administration IT Space (67,482 GSF) would be constructed between the Adanti Student Center and the Lyman Center. Ralph Earl Hall will be demolished to accommodate the new construction.
10. *Orlando House Relocation:* Orlando House would be relocated approximately 250 feet southwest from its present location to make room for the new residence hall (H1).

11. *New Residence Hall 1*: The 500-bed residence hall facing Wilkinson Hall reduces the isolation of Brownell Hall with connections through its central quad. It is planned to provide more suite style housing with more social interaction spaces.
12. *Student Wellness Center*: The 13,400 GSF Student Wellness Center, a one-story building, would be conveniently located between New Residence Hall 1 and the existing West Campus parking garage.
13. *Residence Life*: Three new residence halls are planned for the west campus in place of Farnham, Chase, Wilkinson, Neff and Hickerson Halls. These six-story buildings would replace the outdated residence halls with more suite style rooms and better social interaction spaces. The phased construction of these projects would minimize the impact of lost beds during demolition/construction, the new residence hall (H1) would also provide swing space during this period. Located around consecutive quadrangles, the residence halls would provide more opportunities for outdoor interaction.
14. *Lyman Center*. The 50,415 GSF John Lyman Center for the Performing Arts would be renovated to provide improved performing arts space for the Campus. The drama lab and Theatre Department offices require renovation. Work would involve new lighting, flooring, electrical upgrade and replacement of sound system in the drama lab. The Theatre Department office space would be redesigned and renovated to meet current and future needs.
15. *Business School*. The Business School is currently located in Seabury Hall, which is scheduled for demolition to allow for construction of the new Fine Arts Building. In order to meet the space needs for this growing department, the old Student Center would be renovated (19,848 GSF). The renovations would include new electrical and mechanical systems, the installation of energy efficient windows and the installation of an elevator for handicap accessibility.
16. *Connecticut Hall Renovation/Conference Center*. To meet the needs of an increasing number of students living on campus, an expansion of Connecticut Hall (38,530 GSF) would be needed. The Campus Master Plan update combines this expansion with the identified need for a new Conference Center (135,774 GSF). Connecticut Hall is surrounded by the new construction which would allow for a new exterior appearance to relate more closely to the main pedestrian circulation between the east and west campuses. In addition, the existing structure (45,154 GSF) would be renovated.
17. *Stadium Entrance Moore Field House Addition*. The 42,000 GSF addition to Moore Field House would allow the consolidation of both men's and women's varsity athletics within Moore, freeing up space in Pelz Gymnasium. The addition would be linked to the new parking garage and provide additional field house space as well as swing space to facilitate renovation of the existing locker rooms. A new public entrance to Moore along the east façade to provide direct public access to the basketball court seating is also proposed, and the existing 147,429 GSF field house would be renovated. A new 14,000

GSF Stadium Entry Plaza and ticket office is planned to the north of Moore. It would provide additional linkages to the student life areas to the south.

18. *Special Academic Housing.* Construction of four new graduate student housing structures (likely townhouse in style and approximately 40,443 GSF total) would be located along Fitch Street at the southern most part of campus. These new structures would be the result of similar type structures in the North Campus Complex that are proposed to be demolished and replaced with recreational fields. The structures will likely be similar in design to housing stock in the immediate neighborhood.

19. *Administration Building.* This 82,970 GSF building would replace the one stop administrative services for students now being offered in the temporary Wintergreen Building. The building would condense financial aid, business office, academic advisement, and registration into one space.

20. *North Campus Garage.* A new structure would be constructed adjacent to the North Campus Residential Building. This structure would include a 500 space parking garage and 7,000 GSF student fitness center

The 2008 Campus Master Plan Alternative was carried forward for additional analysis in this EIE because it best meets the project purpose and need by:

- Meeting existing and future space requirements.
- Providing phased-renovation, upgrade, replacement, and expansion of existing facilities.
- Unifying and consolidating key areas and functions of the campus.
- Utilizing existing resources, building on existing strengths, and reinforcing the positive image of the university, community, and state.

3 EXISTING ENVIRONMENT AND ANALYSIS OF IMPACTS

This section describes the existing setting for each resource near the SCSU campus, presents an analysis of potential impacts of each proposed development alternative on those resources, and then presents measures for the mitigation of these impacts when necessary.

3.1 Environmental Resources of No Significance in the Project Area

Review of available mapping and agency scoping comments revealed that some environmental resources do not occur in the project area and would consequently not be affected by the Proposed Action. These resources are therefore not included in the impact analysis sections of this EIE. They consist of natural resources that are often absent from highly urbanized areas such as the SCSU campus. The status of these resources in the project area and the data sources used to determine their absence are described below.

Coastal Resources: The project area is not within the Connecticut Coastal Management Zone; therefore, the project would not affect any coastal resources.

Agricultural Lands and Soils: There are no agricultural lands or soils in the project area, based on review of existing soils data and site observations.

Consistency with Connecticut Coastal Management Act: The project area is located outside of the coastal boundary, as defined in Connecticut General Statutes (CGS) Section 22a-94(b), and is not subject to the provisions of the Connecticut Coastal Management Act, Sections 22a-90 through 22a-112.

3.2 Traffic and Parking

3.2.1 Existing Setting

The regional approach routes to SCSU are from the Merritt Parkway and Interstates 95 and 91. From the north and west via the Merritt Parkway, commuters access the SCSU campus from Interchange 60 to Dixwell Avenue. Vehicles traveling east access the facility via Interchange 59 to Route 63 (Whalley Avenue). Traveling on I-95, commuters access the SCSU campus via Interchange 45 to Ella T. Grasso Boulevard. From I-91, commuters access the campus from Interchange 3 to local downtown New Haven roadways. These campus access routes are shown in [Figure 3-1](#). The traffic study area map for the project is presented in [Figure 3-2](#).

The adjacent roadway network in the vicinity of SCSU consists of the following roadways:

- Route 10 (Fitch Street)
- Wintergreen Avenue
- Crescent Street
- Farnham Avenue

- Blake Street
- Pine Rock Avenue
- Ella T. Grasso Boulevard

Route 10 (Fitch Street) is aligned in a north-south direction and is classified by the Connecticut Department of Transportation (ConnDOT) as a principal arterial roadway in the vicinity of the SCSU Campus. Fitch Street varies in lane width from two to four lanes. In the vicinity of the SCSU campus, Fitch Street provides a four lane roadway south of Crescent Street to Wintergreen Avenue and has turn lanes at key signalized intersection locations. Fitch Street north of Wintergreen Avenue is a three lane roadway, providing two through lanes in the northbound direction and one lane in the southbound direction. North of Pine Rock Avenue, Fitch Street is a two lane roadway with turn lanes at several intersection locations. Further north, Fitch Street enters the Town of Hamden. Development in the vicinity of the study area is primarily institutional and the posted speed limit of the roadway is 25 miles per hour.

Wintergreen Avenue is classified as a local road by ConnDOT. This roadway is aligned in a northwest-southeast direction and observed travel speeds are relatively low, between 25 and 30 miles per hour. In the vicinity of the SCSU campus, Wintergreen Avenue is wide and provides a single travel lane in each direction. The width of the roadway provides de facto turn lanes at a number of intersections. Land use along Wintergreen Avenue in the vicinity of the SCSU campus is institutional, and significant pedestrian activity exists.

Crescent Street is aligned in an east-west direction and is classified by ConnDOT as a principal arterial roadway. The posted speed limit on Crescent Street is 25 miles per hour. Crescent Street provides a single lane in each direction from its intersection with Route 10 (Fitch Street) to the intersection with Ella T. Grasso Boulevard. East of Ella T. Grasso Boulevard, Crescent Street provides two lanes in each direction. Land uses along Crescent Street include residential and institutional developments.

Farnham Avenue is aligned in a north-south direction and is classified as a local roadway by ConnDOT. Farnham Avenue begins at Wintergreen Avenue in the north and terminates at Blake Street. The Farnham Avenue corridor provides a single travel lane in each direction and has on-street parking on both sides of the roadway. The posted speed limit on Farnham Avenue is 20 miles per hour, and there is significant pedestrian activity along the corridor. Land uses along Farnham Avenue include institutional development along the northern portion and residential development in the area near Blake Street.

Blake Street begins at Route 63 (Whalley Avenue) in the west and terminates at Fitch Street (Route 10) to the east. This roadway is classified by ConnDOT as a local roadway and intersects with Farnham Avenue at a signalized “T” intersection. In the vicinity of this intersection, Blake Street is aligned in a northwest-southeast direction and is lined with single family residential homes and apartment buildings.

Pine Rock Avenue is classified as a principal arterial within the study area and provides a single travel lane in each direction. Pine Rock Avenue begins at Fitch Street (Route 10) in the south and continues into the Town of Hamden to the north.

Near the Crescent Street intersection, Ella T. Grasso Boulevard is classified by ConnDOT as a principal arterial and provides a single travel lane in each direction. Ella T. Grasso is aligned in a north-south direction and provides on-street parking and an approximately four foot wide bikeway on both sides of the roadway. Land uses along Ella T. Grasso Boulevard are primarily residential.

Sixteen intersections along these roadway corridors primarily define the study area (See Study Area Map). The signalized intersections include:

- Crescent Street at Fitch Street (Route 10)
- Wintergreen Avenue at Fitch Street (Route 10)
- Pine Rock Avenue/Lot 2 Drive at Fitch Street (Route 10)
- SCSU Faculty & Staff Parking Garage (Drive 3) at Fitch Street (Route 10)
- Farnham Avenue at Wintergreen Avenue
- Ella T. Grasso Boulevard at Crescent Street
- Blake Street at Farnham Avenue
- Fitch Street (Route 10) at Arch Street/Fairview Avenue
- Fitch Street (Route 10) at Blake Street

The unsignalized intersections include:

- Lot 9 Drive/Lot 8 Drive at Farnham Avenue
- Lot 12 Drive at Crescent Street
- Lot 7 Drive at Wintergreen Avenue
- Hickerson Hall Drive at Wintergreen Avenue
- SCSU Facilities Building Lot (Drive 1) at Fitch Street (Route 10)
- Lot 2 Driveway at Fitch Street (Route 10)
- Pine Rock Avenue at the SCSU Residence Complex, South Drive

These intersections and roadway segments are shown on the Study Area Map ([Figure 3-2](#)). Automatic Traffic Recorders (ATRs) were installed at several locations within the study area. A summary of this ATR data which was provided in the “SCSU Traffic Impact Study” dated June 2006 is indicated in [Table 3-1](#). All values are vehicles per day (vpd).

Table 3-1. ATR Data Summary for Study Area Intersections

Traffic Count Location	24 Hour Traffic Volumes	NB/EB Directional 24 Hour Volume	SB/WB Directional 24 Hour Volume
Fitch Street north of SCSU Campus	15,189	7,978	7,211
Pine Rock Avenue west of Fitch Street	7,407	3,391	4,016
Fitch Street south of Pine Rock Ave	23,205	11,234	11,971

Traffic Count Location	24 Hour Traffic Volumes	NB/EB Directional 24 Hour Volume	SB/WB Directional 24 Hour Volume
Fitch Street south of Pine Rock Avenue	15,034	7,658	7,376
Fitch Street south of Crescent Street	9,841	5,083	4,758
Crescent Street east of Ella T. Grasso Boulevard	6,349	3,480	2,869
Ella T. Grasso Boulevard south of Crescent Street	12,479	6,060	6,419
Wintergreen Avenue west of Lot 7	3,840	2,019	1,821
Farnham Avenue south of Wintergreen Avenue	7,021	3,466	3,555
Farnham Avenue north of Blake Street	7,881	3,769	4,112

Source: SCSU Traffic Impact Study, Purcell Associates, June 2006.

Approximately 8,500 parking spaces are currently available on the SCSU Campus. Existing parking is located in many areas throughout the campus, with resident parking concentrated adjacent to the residence halls in lots 3, 4, 6, and 10, the North Campus Residence Complex lot and the parking garage just south of Neff Hall. Faculty and staff parking is focused in the vicinity of the campus academic buildings in lots 1, 2, 5, 11 and 12 and in the parking garage on Fitch Street. Commuter parking is located at the farther reaches of the campus in lot 7 on Wintergreen Avenue and lots 8 and 9 on Farnham Avenue. Graduate students park in the parking garage on Fitch Street and in the surface lot adjacent to it, and handicapped students may park on the first level of the parking garage on Fitch Street. The existing "Parking Facilities" figure (Figure 3-3) shows the location of approximately 4,200 parking spaces. An additional 4,300 available spaces comprised of miscellaneous on-street parking and lot spaces, as well as off-campus parking located at the Eli Whitney Regional Vocational Technical School on Jones Street in Hamden, are not shown on the map.

3.2.2 Background Condition

The City of New Haven recently modified and/or replaced signal equipment and timing plans throughout the City as part of an ongoing traffic improvement project. This project also included new signalized intersection locations.

Several intersections within the study area have been modified as part of the City project. The 2009 background conditions analysis obtained from the "SCSU Traffic Impact Study," dated June 2006, incorporated the proposed signal modifications, which include:

- Modification of signal timings at the intersection of Farnham Avenue at Blake Street and the addition of a left turn lane at the eastbound Blake Street approach.
- New signal equipment and signal timing modification at the intersection of Wintergreen Avenue at Farnham Avenue.
- New signal equipment at the intersection of Fitch Street at Wintergreen Avenue and the addition of a right turn lane at the southbound Fitch Street approach.
- New signal equipment at the intersection of Crescent Street at Ella T. Grasso Boulevard.

- New signal equipment and signal timing modification at the intersection of Fitch Street at Crescent Street and the addition of a northbound right turn lane on Fitch Street.
- New signal equipment and signal timing modification at the intersection of Fitch Street at Pine Rock Avenue/SCSU Drive 5 and the addition of a right turn lane at the southbound Pine Rock Avenue approach.
- New signal equipment at the intersection of Fitch Street at SCSU Drive 3.
- New signalized intersection at Wintergreen Avenue at the SCSU parking lot.

An analysis of each of the study area intersections under the Background Conditions was included as part of the Traffic Impact Study for the Wintergreen Parking Garage, prepared by BL Companies, dated January, 2009. For the purposes of that study, the Background Conditions were considered to be the year 2015, at which time the full increase in enrollment may be expected to be realized.

Traffic counts were taken in 2008 by BL Companies at the key intersections and roadways within the study area, as noted above in Section 3.2.1. Those volumes were projected to future 2015 volumes without the development, using a 1.5 percent per year growth factor. The traffic conditions were then analyzed according to industry standard methods to determine the efficiency of the roadways and intersections within the study area.

In discussing intersection capacity analyses results, Level of Service (LOS) is typically used to describe the operating condition of the intersection. LOS is a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections and 80 seconds per vehicle for signalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Therefore, intersections with longer delay times are less acceptable to most drivers.

This definition for LOS, as well as the methodology for conducting signalized and unsignalized intersection capacity analyses, is taken from the *2000 Highway Capacity Manual* published by the Transportation Research Board.

In discussing two-way stop controlled intersection capacity analyses, the term “level of service” (LOS) is used to provide a description of the delay and operational characteristics of the turns from the minor street (stop sign controlled) to the major street, and turns from the major street to the minor street. Through vehicles are not delayed by the minor street and do not experience delay, therefore they are not rated with a level of service. Levels of service for each of the study area intersections are provided in Table 3-2.

The capacity analysis indicated that each of the intersections within the study area is expected to operate acceptably at LOS D or better during the weekday AM and PM peak hours under the 2015 Background Conditions, with two exceptions. The intersection of Pine Rock Avenue at Fitch Street will operate at LOS E during both peak hours. The intersection of Fitch Street at Blake Street will operate at LOS E during the AM peak hour and LOS F during the PM peak hour.

Table 3-2. Background LOS Summary for Study Area Intersections

Intersection	AM Peak Hour	PM Peak Hour
Signalized Intersections		
Crescent Street at Fitch Street (Route 10)	C	C
Wintergreen Avenue at Fitch Street (Route 10)	C	C
Pine Rock Avenue/Lot 2 Drive at Fitch Street (Route 10)	E	E
SCSU Faculty & Staff Parking Garage (Drive 3) at Fitch Street (Route 10)	A	A
Farnham Avenue at Wintergreen Avenue	B	C
Ella T. Grasso Boulevard at Crescent Street	C	C
Blake Street at Farnham Avenue	A	A
Fitch Street (Route 10) at Blake Street	E	F
Fitch Street (Route 10) at Arch Street/Fairview Avenue	D	D
Unsignalized Intersections		
Lot 9 Drive/Lot 8 Drive at Farnham Avenue	B*	B
Lot 12 Drive at Crescent Street	C	C
Lot 7 Drive at Wintergreen Avenue	B	B
Hickerson Hall Drive at Wintergreen Avenue	B	C
SCSU Facilities Building Lot (Drive 1) at Fitch Street (Route 10)	C	C
Lot 2 Driveway at Fitch Street (Route 10)	C	D
Pine Rock Avenue at the SCSU Residence Complex, South Drive	B	B

Source: Wintergreen Parking Garage Traffic Impact Study, BL Companies, January 2009.

* Indicates side-street approach LOS at two-way stop controlled intersections

3.2.3 Impact Evaluation

Parking

2004 Campus Master Plan Alternative

The parking facilities on the SCSU campus are proposed to be expanded as part of the 2004 Plan. At the Residence Complex South Drive intersection with Pine Rock Avenue, a new parking

garage would be constructed. This garage would provide 500 structured parking spaces and eliminate 34 surface parking spaces, resulting in a net increase of 466 parking spaces.

A second parking garage would be constructed on Wintergreen Avenue at the location of the existing commuter parking lot. At this location, 1,000 new parking spaces would be provided by the parking garage and 368 existing surface parking spaces would be eliminated, resulting in a net increase of 632 parking spaces.

Two new parking garages would be constructed on Crescent Street, including one at the eastern edge of campus and one adjacent to the Lyman Center, east of Fitch Street. Each of the parking garages would provide 500 parking spaces. Two surface lots, which provide a total of 248 spaces, would be eliminated as part of the construction, resulting in a net increase of 752 parking spaces.

The 197 space surface parking lot adjacent to Jennings Hall would also be eliminated by new building construction. All other existing parking facilities on the SCSU campus would remain. The overall project would therefore result in an increase of 1,653 parking spaces over the entire campus.

2008 Campus Master Plan Alternative

Under the 2008 Plan, four new parking garages would be constructed. The Ella Grasso Garage would be located on Crescent Street at the eastern boundary of the campus, and would provide 250 parking spaces. This parking garage would replace the existing 163 space surface lot at the same location, resulting in a net increase of 87 parking spaces at this location.

The Davis Parking Garage would be located adjacent to Davis Hall, immediately behind the existing parking garage on Fitch Street. This garage would provide an additional 600 parking spaces.

The construction of the Davis Parking Garage and the proposed Science Building to the southwest would eliminate two existing surface parking lots which provide a total of 197 parking spaces. This will result in a net increase of 403 parking spaces.

The North Campus Garage would be constructed adjacent to the existing North Campus Residence Complex on Pine Rock Avenue and would provide 500 parking spaces. This garage would eliminate 34 surface parking spaces, resulting in a net increase of 466 parking spaces.

The Moore Field House Garage would be attached to the west side of the Moore Field House addition on Wintergreen Avenue along the western boundary of the campus. The proposed garage would provide approximately 1,200 parking spaces. This garage would eliminate the existing surface parking lot, which currently provides 368 parking spaces, resulting in an increase of 832 parking spaces at this location.

All other existing parking facilities on the SCSU campus would remain. The overall project would result in an increase of 1,788 parking spaces over the entire campus.

Vehicle Trip Generation

The two master plans provide a similar amount of overall parking on campus, and are therefore likely to have similar impacts to the capacity of the adjacent roadways and intersections. It is assumed that the demand for parking would increase as a result of the construction and renovation of campus facilities and that parking lots and parking structures would be the major generators of trips. Therefore, trip generation rates were derived through an examination of vehicular use during the peak hours at the existing parking lots and garages.

The trip generation rates used in this analysis are based on the rates indicated in the Traffic Impact Study for the Wintergreen Parking Garage, prepared by BL Companies, dated January, 2009. That study indicated that the existing parking lots generated approximately 0.20 trips per parking space during the AM peak hour and 0.39 trips per parking space during the PM peak hour.

Based on these rates, the 2004 Plan Alternative is expected to generate 330 additional vehicle trips during the AM peak hour and 645 additional vehicle trips during the PM peak hour within the study area. The 2008 Plan Alternative is expected to generate 358 additional trips during the AM peak hour and 697 additional trips during the PM peak hour. A summary of the generated trips is provided in Table 3-3:

Table 3-3. Trips Generated by Additional Parking on Campus

Location	Additional AM Trips			Additional PM Trips		
	Total	Entering	Exiting	Total	Entering	Exiting
2004 Master Plan	330	284	46	645	232	413
2008 Master Plan	358	308	50	697	251	446

Wintergreen Garage Impact Summary

Under the build condition for the Wintergreen Parking Garage, the intersection of Fitch Street (Route 10) with Blake Street is expected to operate poorly at LOS F during both peak hours. Restriping Blake Street in order to provide a short right turn lane would allow the intersection to operate more efficiently at LOS D during both peak hours, an improvement from the Background Conditions.

The intersection of Fitch Street (Route 10) at Arch Street would decrease to LOS E during the PM peak hour with the addition of the Wintergreen Parking Garage. Widening for a right turn lane on the northbound approach would improve operations to LOS C during both peak hours at this intersection, an improvement from the Background Conditions.

The intersection of Blake Street at Farnham Avenue is expected to decrease from LOS D to LOS E during the PM peak hour with the construction of the Wintergreen Parking Garage. Operations may be improved to LOS B during both peak hours by restriping Farnham Avenue to provide for two lanes on the approach to Blake Street.

Long-Term Impact Summary

The Traffic Impact Study for the Wintergreen Parking Garage provided analysis of the impacts of the construction of a 1,263 space parking garage adjacent to the Moore Field House. The study indicated that the full trip generation would not be realized until 2015, which is therefore considered the full build year for the purposes of the mitigation measures. The study identified mitigation measures at six locations within the campus and at intersections in the adjacent study area.

It should be noted that this Traffic Impact Study only accounts for the proposed 1,263 space Wintergreen parking garage, which would provide a net increase of 895 parking spaces at that location. Further analysis will be performed to identify the full impact of the selected alternative, which each will result in significantly more trips than the Wintergreen Parking Garage alone.

2004 and 2008 Campus Master Plan Alternatives

- The 2004 Plan would generate 330 additional vehicle trips during the AM peak hour and 645 additional vehicle trips during the PM peak hour within the study area.
- The 2008 Plan would generate 358 additional vehicle trips during the AM peak hour and 697 additional vehicle trips during the PM peak hour within the study area.
- Structured parking would be built in addition to or in replacement of surface parking at several locations. Under the 2004 Campus Master Plan, 1,653 new parking spaces would be created, while 1,788 new parking spaces would be created under the 2008 Campus Master Plan. The construction of structured parking would reduce the number of necessary access driveways and security booths. This also has the potential to reduce the number of pedestrian conflicts and vehicle emissions as students would not have to walk across as many parking areas and motorists would spend less time driving to find an open parking space.
- Under the 2004 Campus Master Plan, the closing of Farnham Avenue would redirect the vehicles currently accessing the parking lots on Farnham Avenue from Wintergreen Avenue. All vehicle trips to these parking lots would enter Farnham Avenue via Blake Street. However since the scoping for this EIE, the closing of Farnham Avenue is not an option as a result of discussions with the City of New Haven. The City has no plans of closing Farnham Avenue. Therefore, any associated impacts from this action are inconsequential and no mitigation is proposed.

3.2.4 Mitigation

Wintergreen Garage Mitigation

- **Fitch Street at Blake Street:** Restripe the Blake Street westbound approach in order to provide a right turn lane.
- **Fitch Street at Arch Street and Fairview Avenue:** Provide a northbound right turn lane on the Fitch Street approach. This would require widening along the west side of the approach.

- **Blake Street at Farnham Avenue:** Provide a second approach lane on the Farnham Avenue southbound. This would require restriping in order to eliminate the existing parking lane in the vicinity of the intersection.
- **Wintergreen Avenue at Wintergreen Garage Driveway:** Widen Wintergreen Avenue east of the driveway in order to provide a westbound right turn lane.
- **Fitch Street at Wintergreen Avenue:** Optimize signal timing in order to provide acceptable LOS on all approaches.
- **Crescent Avenue at Ella Grasso Boulevard:** Optimize signal timing in order to provide acceptable LOS on all approaches.

Long-Term Mitigation

2004 and 2008 Campus Master Plan Alternatives

The following additional mitigation measures were indicated as part of the June 2006 Traffic Impact Study, prepared by Purcell Associates. These are examples of mitigation measures that may be required for construction of either alternative, although specific measures will be assessed when a traffic study is prepared for the selected alternative projects is completed through the State Traffic Commission process:

- Re-evaluate the system and pricing structure for issuing parking permits after the garages are constructed to optimize the system's effectiveness.
- Re-evaluate the campus shuttle routes and schedules to improve the timing and convenience of shuttle stops and to reduce travel time delays due to congestion on existing City streets. Explore options for purchasing smaller transit vehicles that can be utilized on campus pedestrian pathways.

The 2004 and 2008 scenarios would result in similar levels of trip generation, both of which are considerably higher than the trip generation utilized for the Wintergreen Parking Garage, suggesting that additional mitigation, such as traffic signal timing adjustments and lane modifications, may also be necessary.

3.3 Air Quality

3.3.1 Existing Setting

Under the authority of the U.S. Clean Air Act, as amended, the U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) for concentrations of six air pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone, particulate matter ten microns or smaller in diameter (PM₁₀), sulfur dioxide (SO₂), and lead. Connecticut adopted the national standards listed in Table 3-4 and subsequently developed a State Implementation Plan (SIP) to attain and maintain these standards. Primary standards are established to protect public health; secondary standards are established to protect plants and animals and to prevent economic damage.

Table 3-4. National Ambient Air Quality Standards

POLLUTANT	STANDARD	AVERAGING PERIOD	NATIONAL STANDARD ^{a, b}
Sulfur Dioxide	Primary	Annual Arith. Mean	080 $\mu\text{g}/\text{m}^3$ (0.03 ppm)
	Primary	24 Hour Average	365 $\mu\text{g}/\text{m}^3$ (0.14 ppm)
	Secondary	3 Hour Average	1300 $\mu\text{g}/\text{m}^3$ (0.5 ppm)
Inhalable Particulates (PM _{2.5})	Primary	Annual Arith. Mean	15.0 $\mu\text{g}/\text{m}^3$
	Primary	24 Hour Average ^e	35 $\mu\text{g}/\text{m}^3$
Inhalable Particulates (PM ₁₀) ^h	Primary	24 Hour Average ^d	150 $\mu\text{g}/\text{m}^3$
Carbon Monoxide	Primary	8 Hour Average	10 mg/m^3 (9 ppm)
	Primary	1 Hour Average	40 mg/m^3 (35 ppm)
Ozone	Primary	8 Hour Average ^{fi}	0.075 ppm
	Primary	8 Hour Average ^{fj}	0.08 ppm
	Primary	1 Hour Average	0.12 ppm
Nitrogen Dioxide	Primary	Annual Arith. Mean	100 $\mu\text{g}/\text{m}^3$ (0.053 ppm)
Lead	Primary	Quarterly Average	1.5 $\mu\text{g}/\text{m}^3$
<p>a) Units are milligrams per cubic meter (mg/m^3), parts per million (ppm), and micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).</p> <p>b) National standards are block averages rather than moving averages</p> <p>c) Intended as a guideline for achieving the short term standard</p> <p>d) Not to be exceeded more than once per year on average over 3 years</p> <p>e) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 $\mu\text{g}/\text{m}^3$ (effective December 17, 2006)</p> <p>f) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.</p> <p>g) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1, as determined by Appendix H of National Ambient Air Quality Standards. As of June 15, 2005 EPA revoked the <u>1-hour ozone standard</u> in all areas except the fourteen 8-hour ozone nonattainment <u>Early Action Compact (EAC) Areas</u>.</p> <p>h) Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM₁₀ standard in 2006 (effective December 17, 2006).</p> <p>i) Standard implemented in May 2008</p> <p>j) Standard effective 1997 through April 2008</p>			
Source: EPA 40 CFR part 50			

The State of Connecticut is divided into two air quality districts: the Greater Connecticut district that includes Hartford, New London, Tolland, Windham and Litchfield counties and the New York-Northern New Jersey-Long Island, NY-NJ-CT district that includes Fairfield, New Haven and Middlesex counties in southwestern Connecticut and in which the SCSU campus is located. Each district is assigned an attainment or non-attainment status with respect to the NAAQS given in Table 3-4. When the State has been designated as attainment for an air pollutant, all regions of the State are in compliance with all the standards (i.e., short term and long term; primary and secondary) for the particular pollutant. The entire state is currently in attainment for CO, NO₂, Pb, SO₂ and PM₁₀. (CT DEP, 2007).

Non-attainment for an air pollutant is assigned when one or more of the standards for the pollutant have been violated in one or more regions of Connecticut. The non-attainment designation that is subsequently applied to a region can reflect the "degree" of non-attainment depending upon a number of factors including the air pollution history in the region, previous designation of the region as either attainment or non-attainment, lack of air pollutant monitoring in the region, and inferences made based on pollutant monitoring done in adjacent or similar regions (CT DEP, 2007). Both air quality districts in Connecticut are designated as moderate non-attainment for ozone and the New York-Northern New Jersey-Long Island, NY-NJ-CT district is designated as non-attainment for PM_{2.5}.

Stationary and mobile sources are generators of air pollutants. Greater vehicle volume or increases in the vehicle congestion, especially at intersections, have the potential to lead to increased emissions. For projects that increase traffic, the criteria pollutants of concern are CO and ozone. Stationary sources, i.e., fuel-burning equipment, also generate emissions of criteria pollutants.

It is important to note that a new ozone air quality standard was implemented in 2008. The new standard, 0.075 ppm, is anticipated to increase the number of annual days when air quality is not attained in Connecticut relative to ozone. This standard became effective on May 27, 2008.

Mobile Sources

The SCSU campus is located within a densely developed urban area. The campus is bordered by two urban arterials, Dixwell Avenue to the east and Whalley Avenue to the south. State Route 10, Fitch Street, bisects the campus. These transportation corridors are heavily used and emissions of criteria pollutants are generated by vehicles. There are numerous signalized intersections surrounding the campus entrances and two signalized intersections within the SCSU borders.

The ambient ozone concentrations at a given location are less dependent on the amount of local emissions than on meteorological conditions, especially wind direction, temperature, and the amount of sunlight. Connecticut DEP operates two ozone monitoring stations in the vicinity of the project; one at James Street in New Haven and the other at Hammonasset State Park in Madison. In 2006, the latest year for which data is published, there was one exceedance of the 8-hour ozone standard at the New Haven monitoring station (the fewest in the state in that year) and six at the Hammonasset station in 2006 (EPA, 2007). There was one exceedance of the 1-hour ozone NAAQS at the Hammonasset station in 2006 and none at the New Haven station.

Stationary Sources

Stationary sources of air pollutants on the SCSU campus include fuel burning equipment, academic laboratory equipment, and art education equipment that involves surface coating (i.e. printing, spray painting, spray cleaning). Stationary sources produce the same pollutants that affect the natural environment as do mobile sources.

SCSU operates as a site under a Title V General Permit to Limit Potential to Emit for emissions of air pollutants from stationary sources issued in 2006. Due to the region's serious non-

attainment status for O₃, the SCSU Title V General Permit limits the production of the ozone precursors VOCs and NO_x from the campus to 50 tons/yr (275 lb/day). SCSU is classified as a synthetic minor stationary source. Currently, the campus is operating at 23% of its allowable emissions (Norton, pers. comm., 2009).

The campus central heating plant and the associated auxiliary generator are major sources of air pollution on campus that are permitted individually by Connecticut DEP. The central heating plant replaced the old plant in 2004 and has significantly reduced oil and natural gas consumption (the new plant operates using both natural gas and low-sulfur oil). Emission levels from the campus fluctuate depending on the type of fuel used in the systems. The heating plant and generator are permitted for 150 million BTU/hr output, and now peak at 37 million BTU/hr (SCSU, 2009).

3.3.2 Impact Evaluation

The air quality impacts are essentially the same under both development alternatives, therefore, the following impact evaluation and mitigation are applicable to both, unless otherwise noted. The generation of additional traffic has the potential to impact air quality from vehicle emissions. Stationary sources of emissions from proposed heating and hot water systems are expected to be negligible. Other stationary sources would be installed with upgraded equipment and would meet environmental compliance regulations.

Mobile Sources

Similar mobile source air quality impacts are anticipated to result from both the 2004 and 2008 Plan Alternatives. Mobile source air quality impacts are related to increases in traffic volumes and the functioning of existing intersections. Growth in traffic over time is anticipated to have impacts to intersections on campus and to minor arterials surrounding the university and may result in increased emissions from mobile sources. However, these traffic impacts would result primarily from increased student enrollment and localized community development and are likely to result regardless of the implementation of the Proposed Action. The traffic generated specifically by each phase of the Proposed Action would have limited relationship to the growth of traffic volumes in the area over time. Therefore, direct and indirect air quality impacts anticipated to be generated as a result of the Proposed Action improvements would be minimal.

Sensitive air receptors are locations where humans are subjected to possible high levels of CO emissions. These receptors are generally located within 100 feet of an intersection, where people are waiting to cross the roadway. Sensitive air receptors within the SCSU campus are located in the immediate vicinity of the intersections of Crescent and Fitch Streets, Wintergreen Avenue and Fitch Street, Wintergreen and Farnham Avenues, and Pine Rock Avenue and Fitch Street.

The 2004 Master Plan includes construction of an additional 2,000 parking spaces, located within three new parking garages, while the 2008 Master Plan includes approximately 1,700 new spaces in two new garages. Parking garages are a source of high CO emissions during peak commuter hours and special events. The increased parking capacity provided through the Master Plans will accommodate increases in student enrollment as well as respond to current parking

deficiencies on campus. Traffic patterns will be altered over time and directed to the parking garages, thus potentially reducing the number of vehicles circling local streets in search of on-street parking. This potential decrease in circling traffic may be offset however, by the availability of convenient parking that may encourage students and employees who use or would use other means of transportation to use their own vehicles. As such, comparing the relatively impact of the alternatives is not possible with available information. Anticipated Master Plan projects will reduce vehicle circulation between buildings, possibly reducing exposure to CO for pedestrians. Additionally the 2004 Master Plan includes a proposal to close Farnham Avenue in order to create a new quadrangle on the west campus, further reducing pedestrian exposure to emissions. This closure is not proposed as part of the 2008 Plan.

Stationary Sources

The heating, ventilating, air conditioning, and other mechanical systems of the proposed buildings will be new stationary sources of air emissions. Neither the 2004 Plan nor 2008 Plan identifies the size and type of mechanical systems that will be used for each proposed structure. Therefore, a quantitative analysis of air quality impacts of the Master Plan projects has not been conducted for this EIE. It can be reasonably assumed, however, that the construction of additional new buildings and their respective mechanical systems will involve some increase in the emission of air pollutants and will have some direct and cumulative impact on the air quality of the region. Additionally, permits may be required for the proposed buildings and associated new equipment or systems as part of the Master Plan improvements.

Modifications will be necessary to the Title V General Permit throughout the implementation of the Master Plan. New equipment and modifications to existing systems require a New Source Review Permit as an addendum to the Title V General Permit. The Title V General Permit has a life span of five years and will be subject to renewal during the span of the Master Plan completion.

Construction activities associated with the Master Plan projects may have short-term direct impacts on local air quality including fugitive dust emissions and emissions from construction equipment engines. The level of impact from fugitive dust will vary depending on local weather conditions and the scope and the nature of the construction activity. Construction-related impacts and mitigation are presented in Section 3.20.

3.3.3 Mitigation Measures

Mobile Sources

Several intersection improvements have been identified for the 2004 and 2008 Plan alternatives to offset anticipated increases in traffic volume due to future increases in enrollment at SCSU and local development in the vicinity of the SCSU campus. These are discussed in Section 3.2 of this EIE. The implementation of those intersection improvements will improve traffic flow and level of service, mitigating potential air quality impacts associated with increased traffic. In addition, the proposed parking garage to be placed along Ella Grasso Boulevard will be accessed

from the existing campus entrance along Crescent Street responding to neighborhood concerns of aesthetics and potential traffic impact.

Transportation control measures (TCM) that reduce congestion, reduce vehicle miles of travel, or reduce vehicle trips will also lower emission levels. Examples of TCMs that mitigate impacts to air quality include coordinated traffic signals, ridesharing programs, and improved transit service. All of these measures are in use in the environment surrounding SCSU. Additional TCMs such as possible modifications to the campus shuttle service and preferred parking for carpooling vehicles will be explored by SCSU to discourage the continued growth of the use of single occupancy vehicles by students and faculty traveling to campus.

Stationary Sources

An evaluation of the predicted emission levels for the 2004 and 2008 Master Plan alternative improvements will be conducted once the mechanical systems have been determined during the final design stage for each project phase. It is anticipated that the new buildings planned for construction will use equipment that will be more efficient and will produce less emissions than those of past and current systems.

The status of the Title V General Permit will also depend on the ability of the SCSU campus to rely on the supply of various fuels, specifically its reliance on gas. Because gas fuel produces lower emission levels in the existing system, its use will be continued as much as possible. In general, use of more efficient heating and power systems and compliance with the requirements of air quality permits for the Master Plan projects will mitigate the potential adverse impacts of project implementation to the extent feasible. If SCSU increases NO_x or VOC emissions above the 50 ton/yr limit of the Title V General Permit, whether from fuel availability issues or from campus system additions, the campus will lose their Title V General Permit status and be moved into a Major Source Title V Permit.

During construction, fugitive dust emissions will be mitigated by using best management practices (BMPs) such as those specified in the Connecticut Department of Transportation (ConnDOT) *Form 814A Standard Specifications* as adopted by DPW including the following section:

1.10.04—Air Quality Control: The Contractor shall exercise every reasonable precaution throughout the duration of the Contract to safeguard the air resources of the State by controlling and abating air pollution in accordance with the D.E.P.'s regulations. These measures shall include the control and abatement of dust, mist, smoke, vapor, gas, aerosol, other particulate matter, odorous substances and any combination thereof arising from Project operations, hauling, storage, or manufacture of materials. The Contractor shall be responsible for obtaining any permits necessary for the operation of its Project equipment including but not limited to crushers, compressors and generators.

3.4 Noise

3.4.1 Existing Setting

The unit typically used to describe sound levels perceptible to humans is the A-weighted decibel (dBA). The A-weighting attempts to approximate the human ear's sensitivity to sounds of varying frequencies and pitch. The decibel is a logarithmic unit of measure. For instance, a 10-decibel change in noise level is perceived as a doubling or halving of loudness. A 3-dB change would be barely perceivable for most people.

The Leq, or Equivalent Level, is the steady-state noise level for a given time period that has the same acoustic energy as the fluctuating noise levels observed during that time period. The Leq can be evaluated over different time periods including one hour (expressed as a one-hour Leq or Leq(h)) or 24 hours (expressed as a 24-hour Leq or Leq(24)).

The Connecticut Department of Environmental Protection (DEP) has set Noise Zone Standards for the evaluation of noise generated by adjacent noise zones (RCSA 22a-69-1 through 22a-69-7.4). The standards establish three noise zones based on land use place limits within each class on the allowable amount of noise to be emitted by a source in an adjacent noise zone. Table 3-5 describes the various classes, with Class A, being the most noise sensitive of the three types and Class C being the least sensitive.

Table 3-5. Connecticut Noise Zones

Class	Description of Noise Zone
A	Generally residential areas where human being sleep or areas where serenity and tranquility are essential to the intended use of the land.
B	Generally commercial in nature, areas where human beings converse and such conversation is essential to the intended use of the land.
C	Generally industrial where protection against damage to hearing is essential and the necessity for conversation is limited.

The immediate vicinity of the SCSU campus is a predominantly residential area interspersed with three parks. Small scale commercial development occurs along the minor arterial routes in the study area. Under RCSA 22a-69-2.2, when multiple uses exist within a given noise zone, the least restrictive land use category shall apply regarding the noise standards. The study area and surrounding area are considered a Class A Noise Zone. According to RCSA Section 22a-69-3.5, a Class A emitter shall not emit noise exceeding Leq levels of 55 dBA in daytime or 45 dBA in nighttime to an adjacent Class A Noise Zone. Construction noise is exempt from these regulations per RCSA 22a-69-1.

In addition to stationary sources associated with activities at a particular location, highway and traffic noise is an additional source. Adverse impacts from highway or traffic noise sources occur when the estimated sound levels approach (within one decibel), meet, or exceed the Noise Abatement Criteria (NAC) set forth by the Federal Highway Administration (FHWA). The NAC

are sound levels corresponding to exterior sound levels that are acceptable for various land use activities. When highway traffic associated with a proposed project is predicted to cause sound levels that approach, meet, or exceed the NAC as described above, noise mitigation measures must be considered.

The noise criteria described above and shown in [Table 3-6](#) are based on land use categories. Category A includes outdoor areas where quiet is an essential element in their intended purpose. Category B includes residences, schools, and libraries. Category C encompasses all other areas, including developed lands. Industrial land uses are within Category C. Whereas the DEP criteria listed above are a function of both the noise emitter and receptor, the FHWA criteria relate only to traffic-related noise and specified for receptors based on land use.

Table 3-6. FHWA Noise Abatement Criteria

Activity Category	Leq(h) (dBA)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in categories A or B above.

Land use along the three major routes leading to the SCSU campus (Whalley Avenue, Dixwell Avenue/Fitch Street and Ella Grasso Boulevard) is a mix of residential and commercial. According to the Connecticut Department of Transportation, the 2005 average annual daily traffic (ADT) volumes on these roadways are 26,400 (Whalley Avenue), 27,200 (Dixwell Avenue), and 22,800 (Ella Grasso Boulevard). Existing noise levels have not been measured and no noise studies addressing current noise levels associated with SCSU are known to have been completed. The sensitive receptors (residences, churches, schools, hospitals) that are located along the routes leading to SCSU are generally close to the roadway in a typical urban setting.

3.4.2 Impact Evaluation

Implementation of the two Campus Master Plan alternatives (the 2004 Plan and 2008 Plan) considered in this EIE will result in similar noise impacts. Temporary noise impacts may result from construction activity, e.g., equipment operation, traffic detours or relocations, and material movement. Due to the residential nature of the campus, large pieces of construction equipment would be in operation at close proximity to residential structures, but noise from construction activities such as pile driving would be of short duration. Additional impacts of construction-generated noise are presented in [Section 3.20](#).

Building mechanical equipment, such as heating, ventilation, and air conditioning units, can generate nuisance noise. The types of facilities that would be built are offices, academic

buildings, parking garages, and residence halls, which are not likely to be significant noise generators. In addition, the construction would occur within an already developed area so significant changes in stationary sources of noise from buildings or activities on campus is not anticipated to result from the Proposed Action implementation.

Additional traffic volume is anticipated in the project area regardless of whether or not the Proposed Action is implemented, or which alternative is implemented. Increased traffic would result in increased mobile sources of noise. However, vehicles traveling to and from the campus would use major city streets and local highways (namely Route 10, Route 63, Wintergreen Avenue, Dixwell Avenue) that are already heavily traveled. The increase of traffic on these roadways, as well as the increased pedestrian activity stimulated by the Proposed Action projects, is not anticipated to create a noticeable increase in overall noise levels. Additionally, peak student commute periods are predicted to occur between 9:00 AM and 1:00 PM and 5:00 PM through 8:00 PM. These peak travel times do not coincide with the most noise-sensitive time of day, which is from 10:00 PM through 8:00 AM. Because any increased traffic would primarily occur during peak activity times within an already urban environment, it is not likely to result in a noticeable change to the overall noise experience.

3.4.3 Mitigation Measures

It is not anticipated that post-construction noise mitigation measures would be necessary for the operation of facilities constructed under either the 2004 or 2008 alternatives. Potential sources of noise, such as HVAC or other mechanical equipment, will be sited away from sensitive receptors and designed with appropriate shielding such as acoustical enclosures or barriers to the extent possible.

Mitigation for construction-generated noise is presented in [Section 3.20](#).

3.5 Water Resources

3.5.1 Existing Setting

Three water bodies and several streams are located in the project area. This section provides a physical description of these water resources. Water quality is discussed in [Section 3.7](#) of the EIE.

Surface Water

Three ponds are located within the project area, as shown in [Figure 3-4](#). University Pond is an approximately 1.1 acre impoundment, located at the eastern portion of the campus, west of the current location of the baseball field. Quarry Pond, shown in [Figure 3-4](#), is located at the northern campus boundary, north of the current location of the athletic track. Beaver Park Lagoon is located along the eastern campus boundary, east of the current location of the baseball field.

The campus is located within the watersheds of Beaver Brook and Wintergreen Brook (Figure 3-5). The majority of the campus is located within the approximately 1.6 square-mile watershed of Beaver Brook, which flows west from Beaver Park Lagoon along the southern campus boundary under Crescent Street and Fitch Street and turns south flowing parallel between Fitch Street and Farnham Avenue.

South of Blake Street, Beaver Brook joins with West River and Wintergreen Brook. A small unnamed tributary of Quarry Pond flows west along the northern portion of the site eventually joining with Wintergreen Brook. The Wintergreen Brook watershed is approximately 10.5 square miles and comprises the western area of the campus and areas to the north of the campus (Figure 3-5).

West River receives flow from both Wintergreen Brook and Beaver Brook at a confluence point approximately 0.3 miles southwest of the campus. The Wintergreen Brook and Beaver Brook subwatersheds comprise nearly one-third of the West River watershed area. From the SCSU campus, West River flows south to New Haven Harbor.

A draft Drainage Master Plan was prepared as a companion to the 2004 Campus Master Plan to evaluate existing drainage and, as described in more detail below, identify appropriate stormwater management strategies as the proposed Master Plan projects are constructed. This plan, which is being drafted and is not yet available, extends and updates the 2000 Stormwater Management Plan for the campus and will be revised to reflect the Final Campus Master Plan.

As part of the Drainage Master Plan, the campus was divided into 12 separate drainage areas. For each drainage area, existing hydrologic conditions were assessed, and the hydrologic response to specific storm events were predicted. Specifically, the predicted peak flow, time of peak flow after the start of the storm, and the predicted runoff quantity were calculated for typical precipitation event sizes that are used for water quality and quantity management designs, including a water quality design event (24-hour storm of 1 inch of precipitation), and 24-hour storms with 2-, 10-, 25-, 50-, and 100-year, recurrence intervals using the HydroCAD modeling software.

The drainage areas range in size from 3.2 to 77 acres. Four of the 12 drainage areas are estimated to have impervious cover of greater than 50%. Predicted existing peak flows for the 100-year, 24-hour storm range from 14 cfs in the 4.2 acre Fitch Street drainage area to 193 cfs in the 77 acre Fieldhouse System drainage area, with associated runoff volumes of 1.53 acre-feet and 27.0 acre-feet, respectively.

At the confluence of Wintergreen and Beaver Brooks, the estimated peak flow for discharges originating on campus during the 100-year, 24-hour storm is predicted to be 339 cfs, which is approximately 14% of the peak combined discharge for Wintergreen and Beaver Brook during a storm of that magnitude.

Floodplains

There are 100-year and 500-year floodplains associated with both Beaver Brook and Wintergreen Brook, as shown on Figure 3-4. There is also a 100-year floodplain associated with Beaver Park Lagoon, northeast of Ella T. Grasso Blvd. and Crescent Street. The floodplain of Beaver Park Lagoon stretches north of Crescent Street, encompassing low-lying areas of the athletic fields and University Pond. The flood insurance study (FIS) of New Haven (Federal Emergency Management Agency, 1980) shows the Beaver Brook floodplain to be relatively narrow parallel to Crescent Street, then widening after crossing Fitch Street, and including approximately half the area between Fitch Street and Farnham Avenue before joining the Wintergreen Brook floodplain downstream of Blake Street. The 1980 Flood Insurance Rate Map (FIRM) shows the 100-year flood elevation for Beaver Brook ranging from approximately 28 feet NGVD on the south side of Crescent Street to 23 feet at Fitch Street, descending to 20 feet downstream of Fitch Street. At the entrance to a conduit downstream of campus, the 100-year flood elevation is approximately 18 feet. A flood insurance profile included in the FIS shows the 500-year flood elevation to be approximately 0.5 feet above the 100-year flood elevation. A floodway map revised in 1983 shows floodways associated with Beaver Brook.

The 100-year and 500-year floodplain of Wintergreen Brook is relatively narrow along the SCSU campus, but widens at the bend in the brook between Springside and Farnham Avenues. The elevation of the brook's floodplain ranges from approximately 23 feet near the western edge of campus to 19.5 feet at the southern end of campus. A floodway is also associated with Wintergreen Brook.

There are no Stream Channel Encroachment Lines (SCELs) associated with on-campus segments of Wintergreen or Beaver Brooks. SCELs are regulatory boundaries associated with selected rivers and streams in Connecticut that define the jurisdiction of CGS Sections 22a-342 through 22a-349a. SCELs are associated with West River, but these areas are not on campus, and will not be affected by Master Plan activities. No campus structures are located riverward of SCELs.

Currently, the Ethnic Heritage Center building on the SCSU campus is located partially within both 100-year and 500-year flood plains. Additionally, portions of the athletic fields adjacent to University Pond and the Beaver Park Lagoon are within the 100-year flood zone of Beaver Brook, and the majority of the existing Parking Lot 9 is located within the 100-year flood zone of Wintergreen Brook.

3.5.2 Impact Evaluation

Surface Water

No direct modification to surface waters (i.e., ponds and streams) is proposed as part of both the 2004 Plan and 2008 Alternative activities. However, construction activities will disturb soils, and changes in the quantity and location of impervious surfaces in the Beaver Brook and Wintergreen Brook watersheds has the potential to alter the amount and timing of runoff generated in the watersheds.

Although soil disturbance will occur through construction, construction phase stormwater pollution such as discharge of sediment and increased stormwater temperature will be prevented through measures required by DPW.

Generally, increasing the quantity of impervious surface and connecting those surfaces to receiving surface waters will increase the quantity, and peak flow rate of stormwater runoff through preventing infiltration to groundwater, reducing transpiration (release of moisture to the atmosphere by vegetation), and increasing the rate of runoff. Additionally, impervious surfaces generally increase the pollutant level of stormwater runoff since increased pavement and roof area is generally associated with increased intensity of land use, and pollutants accumulate on these surfaces and are then mobilized by precipitation, rather than retained by vegetation or infiltration.

Increased impervious area is likely to occur in several of the campus drainage areas following implementation of either the 2004 Plan or the 2008 Plan. Specific changes in runoff characteristics are likely to differ between the two plans, but the impact are likely to be similar in nature and magnitude since measures that must be incorporated would attenuate peak runoff rates and treat stormwater for pollutants.

The increased imperviousness would result in increased peak flows, reduce the time elapsed from the beginning of the storms to the peak flow, increase the quantity of runoff, and increase the pollutant loading in the stormwater discharge if no mitigation is implemented. Vehicular traffic, surface parking lots, and the top floors of parking garages are sources of sediment, hydrocarbons, metals, nutrients, pathogens, and other pollutants in stormwater runoff.

The sections below present impacts that are likely to differ between the 2004 Plan and the 2008 Alternative.

2004 Plan Alternative

A draft concept hydrology model of the campus was created as a companion to the 2004 Campus Master Plan identified five drainage areas where the quantity of impervious surface is likely to increase relative to existing conditions, and six drainage areas in which the quantity of impervious surface is likely to decrease. However, under this alternative a campuswide increase in impervious surface area is likely, with corresponding increasing peak flows.

2008 Development Plan Alternative

An impervious surface estimate and hydrology model is being prepared for the 2008 Alternative to assess changes in runoff characteristics that may result from proposed projects. This model was not available for the writing of this EIE. However, a preliminary qualitative assessment was performed in an attempt to identify areas of potential significant changes in impervious area. Increases in impervious area are likely to occur in four campus drainage areas following the 2008 Alternative implementation. Decreasing impervious area is likely in only two drainage areas, and insignificant to no change in impervious area is likely in five campus drainage areas. It is likely that the increase in impervious cover on campus resulting from the 2008 Alternative projects is greater than the increase that would result from 2004 Plan projects.

Floodplains

Both the proposed 2004 Plan and 2008 Alternative includes construction of four structures for special academic housing within the 100-year and 500-year flood zone of Beaver Brook, and possibly the floodway. Figure 3-6 shows the location of these buildings relative to existing flood zones. Specific impacts cannot be quantified until the additional design detail is available. However, since the majority of this area is lawn, adding new structures within this area which is subject to riverine flooding would reduce flood storage capacity and therefore affect adjacent properties. Since this critical activity would be a more intensive use of the floodplain, an exemption under Conn. Gen. Stat. Section 25-68d would be necessary. Under the exemption process, this critical activity would have to meet the following criteria in order to receive CTDEP approval:

- the critical activity is in the public interest;
- will not injure persons or damage property in the area of such critical activity; and
- complies with the provisions of the National Flood Insurance Program.

It is anticipated that the Final Campus Plan, in addition to each project as applicable, will be subject to Flood Management Certification by the CTDEP; this process includes the quantitative assessment of impacts, the identification of mitigation measures, and the assessment of alternatives to construction within the floodplain. Anticipated mitigation measures are discussed in Section 3.5.3. No work is proposed riverward of SCELs.

3.5.3 Mitigation Measures

Surface Water

The minor changes in surface water hydrology that would occur through implementation of both the 2004 and 2008 Plans can be mitigated through the use of Low Impact Development (LID) and LEED site design elements and the design and maintenance of stormwater management facilities on campus. These measures, which will treat stormwater for pollutants, prevent increases in peak flows, and promote groundwater recharge are required by DPW's design and construction requirements and CTDEP regulatory programs. The updated Drainage Master Plan will identify treatment and mitigation measures for stormwater management during and after construction of the proposed Master Plan projects.

All DPW project that require site work require a "Soil Erosion and Sediment Control Plan" or a "Stormwater Pollution Control Plan." (DPW 2008) The latter is required for projects with soil disturbance of greater than one acre by the DEP *General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities*. The former is required for construction activities that disturb less than one acre. Both types of plans require the implementation of measures to prevent pollution in discharged stormwater and will be consistent with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*.

Applicable projects are subject to Flood Management Certification requirements pursuant to Sections 25-68(b)-(h) of the Connecticut General Statutes. The Connecticut DPW requires that projects conform to the requirements of the *2004 Connecticut Stormwater Quality Manual* including performance criteria for runoff volume reduction and groundwater recharge, peak flow control and stream channel protection, and pollutant reduction. DPW also requires that projects meet LEED Silver standards and criteria for site design as applicable (DPW 2008).

Where recommended by the *Connecticut Stormwater Quality Manual* and LEED standards and criteria, construction of either the 2004 Plan or 2008 Alternative projects would incorporate sustainable site design elements and LID design practices to treat and infiltrate stormwater close to its source, reduce peak flows and runoff volume, and increase groundwater recharge in areas of the project site that are free of historical subsurface contamination. Such measures would effectively reduce the adverse impacts of impervious cover associated with the proposed development, thereby reducing the impact of development and addressing stormwater quality issues. Where applicable, individual project designs would include the following elements consistent with the *Connecticut Stormwater Quality Manual*, which provides guidance on the measures necessary to protect the waters of the state from the adverse impacts of post-construction stormwater runoff:

- A combination of structural and non-structural best management practices in a treatment train approach.
- Pervious pavement for low-intensity use parking areas such as overflow parking or service roads,
- Vegetated swales, tree box filters, and/or biofiltration islands (i.e., rain gardens) to infiltrate and treat stormwater runoff from building roofs and parking lots,
- Stormwater filtration to inactivate or remove indicator bacteria and other pathogens, consistent with the bacteria TMDL,
- Emphases on reducing access road widths, and reduced parking lot areas,
- The use of shade trees, light colored concrete, and porous pavement to reduce the heat island effect and potential for thermal pollution. Stormwater treatment practices will explore possibilities of designs to minimize warming of stormwater discharges,
- If soil conditions permit, dry wells to manage runoff from building roofs. Dry wells will generally not be used in areas of the project site with high groundwater or bedrock and in areas with historical contamination to avoid potential mobilization of subsurface contaminants,
- New catch basins proposed for the project site will have deep sediment sumps and hooded outlets,
- Outdated or failing drainage structures will be replaced with new structures or retrofitted to include deep sediment sumps and hooded outlets,
- Rainwater harvesting systems (cisterns, rain barrels) to capture stormwater from building roofs for the purpose of reuse for irrigation or gray water systems,
- The use of catch basin inserts, hydrodynamic separators, and other forms of secondary treatment practices either in a treatment train approach or as stand-alone water quality treatment devices where physical or site conditions limit the use of other practices,
- The use of subsurface stormwater detention systems to mitigate potential increases in peak flows that cannot be mitigated through the use of the above practices.

Stormwater management practices that rely on infiltration would be located in areas of the project site where subsurface conditions allow. The feasibility of stormwater infiltration depends on soil characteristics and depth to high groundwater and bedrock, as well as areas of potential subsurface contamination, if any.

The implementation of LID practices, stormwater treatment, infiltration, and detention measures on campus are likely to counteract the impact of additional development and impervious surface, which will serve as effective mitigation. The Drainage Master Plan that is currently being prepared for the 2008 Campus Master Plan will identify locations and conceptual designs for these measures to demonstrate that they can be made to work effectively.

Operation and maintenance (O&M) plans would be developed for the stormwater management systems. Consistent with existing campus facility management practices, the O&M Plans would include requirements for street sweeping and stormwater system inspections and maintenance. Proposed conceptual stormwater management measures will be included in the Drainage Master Plan as part of a Master Plan Flood Management Certification. These stormwater concepts will demonstrate that performance criteria can be met using available areas on campus.

The stormwater management systems for the proposed parking garages would employ independent collection systems designed to treat the runoff from different types of parking areas. Runoff from exposed parking levels, which generally produce a high volume of runoff with relatively low concentrations of pollutants, would be directed to the storm drainage system and treated using a swirl-type gross particle separator or equivalent technology. Runoff and floor washwater from interior levels of the parking garages, which generally produce a low volume of runoff with relatively high concentrations of pollutants, would be directed to the sanitary sewer system, with an oil/water separator. Such discharges would be permitted under the CTDEP *General Permit for Miscellaneous Discharges of Sewer Compatible Wastewater* as building maintenance wastewater.

Floodplains

Both the 2004 and 2008 Campus Master Plan alternatives includes construction of special academic housing (a critical activity) within the 100-year and 500-year flood zones along a portion of Beaver Brook near Fitch Street. Although, specific mitigation measures would be identified once more specific building designs are available, in order to comply with the requirements for Flood Management Certification (Sections 25-68b through 25-68h, inclusive of the Conn. Gen. Stat. and Sections 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies), it is anticipated that any structures within the floodplain would incorporate the following:

- Structures designed for human habitation will be elevated with the lowest floor one foot above the level of the base flood.
- Service facilities such as electrical and heating equipment be constructed at or above the elevation of the base flood or floodproofed with a passive system.
- All water supply equipment be designed to prevent flood waters from entering and contaminating the system.

- All sanitary sewer collection systems located in the floodplain have watertight manhole covers and if equipped with vents, extend above the elevation of the base flood.

Material that may be stored in the floodplain as a result of the Master Plan projects would be subject to the following mitigation measures:

- The storage of materials that are buoyant, hazardous, flammable, explosive, soluble, expansive radioactive or which could be injurious to human, animal or plant life would be prohibited below the elevation of the base flood for a critical activity.
- Other material or equipment may be stored below the elevation of the base flood for damage by floods, and provided that such material or equipment is firmly anchored, restrained or enclosed to prevent it from floating away.

In addition, any construction activities within the floodplain that have the potential to change floodplain topography would be subject to the following:

- No filling, dumping or construction or other activity which would increase the elevation of the base flood by more than one foot or adversely affect the hydraulic characteristics of the floodplain unless the proposed filling is fully compensated for by excavation in or contiguous to the filled area.
- No filling, dumping, construction or excavation will be allowed if these changes will result in a concentration of the natural flow of water such as to cause or increase drainage, erosion or sediment problems.
- Any fill placed in the floodplain will not be greater than that which is necessary to achieve the intended purpose as demonstrated by a plan showing the uses to which the filled land will be put and the final dimensions of the proposed fill or other materials.
- Such fill or other material will be protected against erosion as discussed in the Connecticut Guidelines for Soil Erosion and Sediment Control.
- Any activity within a floodway designated by FEMA which would result in an increase of the elevation of the base flood or ten year flood profile will be prohibited.
- The placement of fill in areas of high velocity flow or at the outside edge of a migrating river bend will be discouraged.

3.6 Wetlands

Existing Setting

Wetlands in Connecticut are identified based on soil type. As defined in CGS Section 22a-38(15), wetlands are land not regulated under the state Tidal Wetlands Act, which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey, as may be amended from time to time, of the Natural Resources Conservation Service (NCRS) of the United States Department of Agriculture (USDA).

A wetland delineation performed in accordance with both CGS Section 22a-38 (Inland Wetlands and Watercourses Act) and the method described in the Army Corps of Engineers Wetlands

Delineation Manual was conducted by a certified soil scientist from New England Environmental Services in August 2, 2007. The delineation confirmed the presence of two existing wetlands on the SCSU campus in the vicinity of proposed Master Plan projects. The regulated wetlands identified in the vicinity of the project area are depicted in [Figure 3-7](#) and include University Pond and the surrounding area, and a portion of the Beaver Park Lagoon in the southeastern section of campus.

University Pond is manmade and approximately one acre in size. A wide shrub and tree border occurs around the edge of the pond and mowed grass occurs beyond the woody border. The section of the Beaver Park Lagoon which was delineated is adjacent to Pond Street. A wooded vegetated strip occurs along the edge of the wetland.

The pond appears to have a high flood storage capacity due to the constricted outlet. The woody vegetated strip around this section of the wetland adds in trapping sediment and removing nutrients which may occur in runoff from the adjacent athletic fields.

The following plant species were identified in wetland areas associated with University Pond:

- Tree species: Norway Maple, Silver Maple, and Red Pine.
- Shrub species: Silky Dogwood, Autumn Olive, Smooth Sumac and Multiflora Rose. The Silky Dogwood is the dominant shrub species and has a good wildlife food value. The Autumn Olive and Multiflora Rose are exotic invasive plants and are abundant in many areas around the pond.
- Herbaceous Plant Species: Jewelweed, Blue Vernain, Sensitive Fern, Milkweed, Phragmites, Lurid Sedge, Fox Sedge, Wool Grass, Virginia Creeper, Soft Rush, and Asiatic Bittersweet. The Asiatic Bittersweet and Phragmites are exotic invasive plants.

The following plant species were identified in wetland areas associated with the southern portion of Beaver Park Lagoon:

- Tree species: Norway Maple, Willow, Crab Apple, and Sumac.
- Shrub species: Silky Dogwood, Multiflora Rose, Buttonbush, Privet, Winterberry and Japanese Barberry. Japanese Barberry and Multiflora Rose are exotic invasive plants.
- Herbaceous Species: Virginia Creeper, Poison Ivy, Asiatic Bittersweet, Jewelweed, Wine Berry, Milkweed, Japanese Knotweed, Sensitive Fern, Blackberry and, Phragmites. The Phragmites, Japanese Knotweed, Asiatic Bittersweet and Win Berry are exotic invasive plants.

3.6.1 Impact Evaluation

The improvements proposed in both the 2004 and 2008 Campus Master Plan Alternatives would not directly affect wetland resource areas, and there are no anticipated impacts to these wetland systems.

Temporary construction-related impacts associated with erosion, sedimentation, discharge of dewatering, and increases in water temperature and turbidity are possible, but unlikely given the stormwater management and erosion control plans for the projects (Section 3.5). Because no significant changes in watershed hydrology are anticipated as a result of the project, no indirect or cumulative impacts to wetland resources are expected.

3.6.2 Mitigation Measures

As detailed in Section 3.5, potential impacts from construction activities will be mitigated by best management practices and the implementation of soil erosion and sediment controls consistent with the CT DEP *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* and the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. Post construction stormwater management measures will be implemented as described in Section 3.5.

3.7 Water Quality

3.7.1 Existing Setting

This section discusses the water quality of the surface water resources in the project area that are described in Section 3.5. A discussion of groundwater quality is contained in Section 3.8.

The CTDEP maintains water quality classification maps for the water resources of the state. There are five classifications for inland surface water; each classification includes designated uses and discharge restrictions. All surface waters on the SCSU campus are identified as Class A, with the exception of Wintergreen Brook, which is designated B/A. Water quality classifications for surface water resources near the campus are presented in Figure 3-4. This designation indicates that the reach is classified A, but only attains Class B. However, this reach is not listed in the 2008 Connecticut Impaired Waters List as being impaired. Class A waters are designated for use as potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply and other legitimate uses including navigation. Discharges into Class A waters are restricted to discharges from public or private drinking water treatment systems, dredging and dewatering, emergency and clean water discharges. Class B waters are designated for habitat for fish and other aquatic life and wildlife, recreation; navigation; and industrial and agricultural water supply.

Upstream of its confluence with Wintergreen Brook, the West River is designated Class A. South of Route 10, the West River is classified using coastal and marine surface water classifications, and the river is designated Class SC/SA. Class SA surface waters are designated for marine fish habitat, other aquatic life and wildlife, shellfish harvesting for direct human consumption, recreation, industrial water supply, and navigation. Class SC waters do not meet one or more of the designated uses. This reach of the West River does not meet designated uses for marine fish habitat, other aquatic life and wildlife, and recreation. The following two causes of the impairments, which are for aquatic life habitat and recreational uses, are listed in the 2008 Connecticut Impaired Waters List:

- The cause of the marine fish habitat, other aquatic life, and wildlife impairment is unknown, with potential sources listed as combined sewer overflows, unspecified urban stormwater, upstream impoundments, and impacts from flow regulation and modification.
- The cause of the recreation impairment is listed as *Escherichia Coli* (*E. coli*), with potential sources listed as combined sewer overflows, and unspecified urban stormwater.

3.7.2 Impact Evaluation

Implementation of either the 2004 or 2008 Campus Master Plan alternatives are likely to result in similar impacts to surface water quality. The potential for water quality impacts resulting from the implementation of the proposed plans is primarily associated with discharge of uncontrolled stormwater runoff during and following construction. The campus is served by an existing storm drainage system constructed prior to implementation of water quality treatment and quantity attenuation requirements that connects to the City of New Haven storm drainage system or discharge directly to surface water and groundwater.

As described previously in Section 3.5, direct and indirect impacts are possible as the result of increased impervious surface and resulting increases in stormwater runoff quantity and decreases in stormwater quality resulting from implementation of the Master Plan. Increased runoff has the potential to impact water quality because increased velocity in receiving waters has the potential to scour stream channels, leading to increased sediment loads and consequent degradation of water quality. However, as discussed in Section 3.5, the increases in peak flow, if any, would be attenuated through implementation of required treatment measures.

Water quality impacts can be caused by additional impervious surfaces created through the construction of new buildings and parking facilities, resulting in reduced infiltration, additional storm water runoff and the transport of pollutants commonly found in runoff from urban areas, i.e., sediment, metals, bacteria, nutrients, and chemical compounds such as hydrocarbons or deicing agents. Consequently, runoff has the potential to result in direct, indirect and cumulative impacts to water quality.

The potential for impacts from stormwater runoff in any of the drainage areas on the SCSU campus is related to the land use and activities within a drainage area and the presence of stormwater management measures to protect receiving water quality. For example, parking lot areas are more likely to generate runoff carrying sediment and metals, whereas runoff from landscaped areas is more likely to contain nutrients.

Impacts associated with runoff from construction activities have the potential to discharge sediment and other pollutants. As discussed below, these impacts can be avoided or mitigated by following the *Connecticut Sedimentation and Erosion Control Guidelines* as adopted by DPW, and erosion and sedimentation control plans specified in contract drawings for each individual project. In addition, because some of the Master Plan projects will disturb greater than 1 acre of land, construction will need to comply with the requirements of the *General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities*.

3.7.3 Mitigation Measures

As detailed in Section 3.5, potential impacts from construction activities will be mitigated by best management practices and the implementation of soil erosion and sediment controls consistent with the CT DEP *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* and the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. Post construction stormwater management measures will be implemented as described in Section 3.5.

3.8 Groundwater Quality and Resources

3.8.1 Existing Setting

The groundwater quality classification surrounding the SCSU campus is designated by the CTDEP Water Quality Standards as Class GB (CTDEP, 2002) (see Figure 3-8). Class GB groundwater is “within a historically highly urbanized area or an area of intense industrial activity and where public water supply service is available. Such groundwater may not be suitable for human consumption without treatment due to waste discharges, spills or leaks of chemical or land use impacts” (CTDEP, 2002). Designated uses for Class GB groundwater include industrial process water and cooling waters and base flow for hydraulically connected surface water bodies (CTDEP, 2002).

The groundwater quality in areas adjacent to the campus north, east, and south is also designated as Class GB (CTDEP, 2002). A Class GA groundwater area is located immediately west of the campus on the west side of Wintergreen Brook. CTDEP describes GA groundwater as, “groundwater within the area of existing private water supply wells or an area with the potential to provide water to public or private water supply wells” (CTDEP, 2002). DEP presumes that groundwater in such an area is, at a minimum, suitable for drinking or other domestic uses without treatment. Designated uses of Class GA groundwater include: “existing private and potential public or private supplies of water suitable for drinking without treatment; [and] base flow for hydraulically connected surface water bodies” (CTDEP, 2002).

There are no existing or potential surface or groundwater supply reservoirs or wells in the vicinity of the campus. The water supply for the campus and surrounding neighborhoods is provided by the South Central Connecticut Regional Water Authority. The campus is thought to be underlain by fine to coarse-grained stratified drift capable of yielding small to large amounts of water to individual wells (CTDEP Ground-Water Availability Map, 1978); however there are no existing or potential aquifer protection zones encompassing the campus in either Hamden or New Haven.

3.8.2 Impact Evaluation

Activities proposed as part of both the 2004 and 2008 Campus Master Plan Alternatives are not anticipated to result in any significant direct or indirect impacts to underlying groundwater aquifers or the quality of the groundwater. Stormwater would be managed to mimic existing hydrologic conditions, so no significant changes in groundwater recharge are likely.

Groundwater quality would not be impacted due to either construction-related or post-construction activities associated with the Master Plan projects and groundwater under the campus property would retain its Class GB classification.

3.8.3 Mitigation Measures

Since no significant impacts are anticipated for both the 2004 and 2008 Plans, no mitigation measures are proposed.

3.9 Endangered, Threatened, or Special Concern Species or Habitats

3.9.1 Existing Setting

According to CTDEP Natural Diversity Database (NDDB) mapping, there are several mapped areas along the perimeter of the campus with the potential for endangered, threatened, or special concern species or habitats. Based on review of project mapping, the CTDEP Wildlife Division has determined there are no known existing populations of Federal or State Endangered, Threatened or Special Concern Species that occur on the SCSU campus (coordination letter dated August 28, 2007 in [Appendix C](#). [Figure 3-9](#) presents NDDB areas relative to campus.

3.9.2 Impact Evaluation and Mitigation Measures

Neither the proposed 2004 Plan nor the proposed 2008 Plan is anticipated to adversely impact endangered, threatened, or special concern species or habitats. Therefore, no mitigation is proposed.

3.10 Fish and Wildlife, Habitats, and Ecosystems

3.10.1 Existing Setting

The SCSU campus is located within an urban residential setting. The campus is primarily composed of developed areas, including buildings, parking structures and lots, athletic fields, courtyards and common areas, lawn areas, and tree and shrub plantings. The less-developed areas of the campus have some native vegetative cover, including a narrow fringe of trees, shrubs, and herbaceous plant species along University Pond and Beaver Park Lagoon. [Section 3.6](#) of this EIE contains a description of the wetland plant species associated with University Pond and the southern portion of Beaver Park Lagoon.

Wildlife observed in the areas surrounding University Pond and Beaver Park Lagoon include Canada Geese, Muskrat, Green Frogs, Painted Turtles, Blue Gill, and Large Mouth Bass. University Pond provides waterfowl habitat for a number of urban species tolerant of humans. The wetlands along Beaver Park Lagoon support a low diversity of wetland species and provide little habitat for most animals. Other wildlife observed on the campus are typical of an urban setting.

3.10.2 Impact Evaluation and Mitigation Measures

2004 Campus Master Plan Alternative

Open space objectives of the 2004 Plan include preserving the existing mature vegetation, enhancing the native plant palette, and improving the spatial quality of landscaping throughout the campus. The improvements proposed in the 2004 Plan would result in only minor impacts to existing vegetative communities. The majority of planned improvements would take place in areas presently occupied by buildings, parking areas, and landscaped areas without extensive vegetative cover, or in areas previously cleared and graded. Areas where predominant vegetative cover exists are not planned for development and would not be impacted. Construction would result in removal of existing vegetation, which consists primarily of mowed grasses and landscape plantings of shrubs and trees. The removal of trees would be a minor impact considering the developed, urban setting of the campus.

The upland areas of the campus where development is proposed have been previously disturbed and provide very limited habitat for animals. Removal of existing vegetation during construction will result in temporary displacement of animals making use of plantings for cover. These animals would disperse to other areas until construction is completed and likely return as new landscaping and vegetation becomes established. The mammal species known to occur on the campus are species that have adapted to human development and occupation. Additionally, no wetland areas would be disturbed by the proposed improvements. The proposed improvements would result in no overall change in the abundance or diversity of wildlife on campus. Therefore, no mitigation is proposed.

2008 Campus Master Plan Alternative

Similar impacts are expected to result under the 2008 Plan. Improvements proposed in the 2008 Plan would result in only minor impacts to existing vegetative communities, with impacts limited to areas that are currently occupied by buildings, parking lots, grassed or landscaped.

The upland areas of the campus where development is proposed have been previously disturbed and provide very limited habitat for animals. Removal of existing vegetation during construction will result in temporary displacement of animals making use of plantings for cover. These animals would disperse to other areas until construction is completed and likely return as new landscaping and vegetation becomes established. The mammal species known to occur on the campus are species that have adapted to human development and occupation. Additionally, no wetland areas would be disturbed by the proposed improvements. The proposed improvements would result in no overall change in the abundance or diversity of wildlife on campus. Therefore, no mitigation is proposed.

3.11 Historic Sites, Districts, and Archeologically Sensitive Areas

3.11.1 Existing Setting

The majority of campus buildings date from the early 1950s. Coordination between SCSU and the State Historic Preservation Office (SHPO) identified three buildings on Farnham Avenue with historical significance (shown in [Figure 3-10](#)), all of which pre-date the campus' existence.

These buildings include:

- The Admissions House,
- The Orlando Public Health Building,
- The Lang Social Work House.

There are no campus buildings currently listed on the State or National Register of Historic Places. The campus is not located within or adjacent to a historic district. Given the highly developed nature of the campus, no archaeologically sensitive sites are known to exist on campus.

Several public parks and cemeteries are located on or in the vicinity of the campus. Edgewood Park is a passive recreation area located south of the campus along Whalley Avenue. Beaver Pond Park, designed in the early 1900s by the renowned landscape architect Frederick Law Olmstead, is located adjacent to the southeast corner of the campus. Beaverdale Memorial Park and Cemetery is privately owned and occupies a tract of land along Fitch Street between the east and west portions of the SCSU campus. Other cemeteries include B’Nai Jacob Memorial Cemetery west of campus and Beecher School Cemetery south of campus.

3.11.2 Impact Evaluation and Mitigation Measures

2004 Campus Master Plan Alternative

The Admissions House and Lang Social Work House would not be altered by the proposed 2004 Plan development projects. The Orlando Public Health Building would be relocated across Farnham Ave from its existing location to between the Admissions and Lang Houses with the Admission and Lang Houses remaining unaltered, but renovated. A Memorandum of Agreement (MOA) would be prepared between CSUS and the SHPO documenting CSUS’s commitment to preserve and maintain the Admissions House, Orlando Public Health Building, and Land Social Work House, should these project move forward. Given the absence of State- or Federally-listed historic sites or districts and the highly disturbed nature of the campus landscape, the 2004 Plan activities are not anticipated to result in any direct impacts on historic sites, districts or archaeologically sensitive areas.

2008 Campus Master Plan Alternative

Similar to the 2004 Plan, the 2008 Plan Alternative proposes to relocate the Orlando Public Health Building approximately 250 feet to the southwest from its existing location. The Admission and Lang Houses would remain unaltered, but renovated. A Memorandum of Agreement (MOA) would be prepared between CSUS and the SHPO documenting CSUS’s commitment to preserve and maintain the Admissions House, Orlando Public Health Building, and Land Social Work House, should these project move forward. Given the absence of State- or Federally-listed historic sites or districts and the highly disturbed nature of the campus landscape, the 2008 Plan activities are not anticipated to result in any direct impacts on historic sites, districts or archaeologically sensitive areas.

3.12 Visual Resources

3.12.1 Existing Setting

The SCSU campus is located within an urban residential setting, amidst the steep topography of the surrounding area. The traprock ridges of West Rock rise above the campus to the north and northwest. To the south and west of the campus, the land drops toward the Beaver Pond Park and associated low-lands. Beaverdale Memorial Park and various city streets and state roads bisect the campus.

Within the campus, walkways connect green spaces comprised of lawns, trees, shrubs, and other landscaping features. Academic and residential buildings of various architectural styles are located throughout the campus. Buildings are low to medium height, generally in brick, built during and after the 1950s. Two identifiable quadrangles exist on campus. There is no consistent design approach or palette of materials used for entries and plazas on campus. In general, parking is inefficient in its use and allocation and interrupts the campus atmosphere.

The existing campus that is owned by the State of Connecticut, with custody, care, and control by CSUS, has a number of large open areas including the pond and athletic fields on the eastern boundary of the campus, the main academic quadrangle formed by Buley Library, Engleman Hall and Earl Hall. However these open spaces are not effectively linked together and the edges are poorly defined.

3.12.2 Impact Evaluation and Mitigation Measures

2004 Campus Master Plan Alternative

Implementation of the 2004 Plan would address identified negative visual features and improve the aesthetic environment of the campus. New buildings will enhance the architectural character of the campus and help to define major campus open spaces, including quadrangles, plazas, common spaces, campus entrances/gateways, drop-off zones, and pedestrian crossing zones.

Reorganization of the Main Quadrangle places the focus on student activity at the student center with a panoramic view to the West Rock outcrop. The internal focus and external symbolism makes this the center of the campus. The Main Gate provides a drop-off and plaza area, and is easily identifiable by a vertical site feature and high intensity of planting. It creates a new image of the campus for arrival and ceremonial functions. Passive development east of Engleman Hall includes pathways, gazeboes and overlooks to enhance the quality of access and use of this common open space. Proposed streetscape improvements at the other major campus entrances include plantings and signage that will be the primary identifiable campus elements.

The 2004 Plan includes other visual amenities including improved lighting, signage, paving, site furniture and planting to establish a campus standard, which can be used to enhance the landscape, various types of open spaces and routes of circulation, define campus edges, and provide identity and cohesiveness to the campus. Implementation of the 2004 Plan would add lighting in areas of deficiency that may have safety issues, as well as incorporate new lighting standards for new projects and as existing fixtures and poles need replacement.

Vegetative screening is proposed along campus edges to minimize the impact of new development on the surrounding visual environment. The edges of campus would be landscaped with trees and shrubs and low walls and fences to better define what is 'campus' and what is 'neighborhood', and provide a consistent image of the campus.

In summary, the proposed improvements are intended to improve the appearance of campus, provide more distinct limits to the campus, and would not impact important aesthetic resources such as West Rock and the Beaver Ponds. As such, there are no anticipated negative impacts to visual resources and thus no mitigation proposed.

2008 Campus Master Plan Alternative

The 2008 Campus Master Plan addresses the visual impact of proposed improvements in both the East Campus and West Campus. East Campus improvements consist of three primary areas, including the new Davis parking garage, the Science Quadrangle, and the Crescent Street area. West Campus improvements focus on residential, athletic, parking, and public safety improvements.

The proposed Davis Parking Garage along Fitch Street is intended to provide additional parking for approximately 400 to 500 cars on the campus while locating that parking at the Campus periphery, reducing traffic congestion within the campus. The site selected for the garage is south of the existing Fitch Street garage and currently consists of a surface parking lot. The proposed garage would connect to the existing garage to take advantage of the existing entrance and exit infrastructure. The 2008 Plan document states that building a three- to four-story parking garage on the existing grade would be intrusive, obstruct views and reduce campus connectivity from Davis Hall to the rest of the campus. The 2008 Plan thus proposes a below-grade structure to mitigate this disconnect, both visually and physically. Three levels of underground parking and parking on the roof deck at the existing grade maintains the visual connectivity of the surrounding buildings. A corridor between the Fitch and Davis parking garages would connect Davis Hall to Pelz Gym and the science quadrangle.

A detailed alternatives analysis was also completed to assess the preferred Science Quadrangle concept relative to visual impact. Concepts for both the built-out condition of this area and an interim plan for projects in this area are presented in the plan to demonstrate that the quadrangle would be appealing before completion. Currently, the area where the quadrangle is proposed consists of a large parking lot, and this major entry to campus from Fitch Street is not discernable as a campus entrance. Similar to the 2004 Plan, the 2004 Plan proposes construction of the new science building along Fitch Street, with a distinct arcade along its Fitch Street façade defining the campus edge. The proposed building would frame the science quadrangle with entrance portals built into it. Jennings Hall would be renovated to include a central atrium and entrance foyer that opens onto the quad.

The built out condition of this quadrangle includes new Academic and Health and Human Services buildings. The Health and Human Services building would be located at the junction between the new Science Building, Jennings Hall and Pelz Gym. It requires a reconfiguration of service access to Jennings Hall, with internal underground access proposed for all three buildings. This building location frames the science quad, providing views into it from Fitch

Street. It takes advantage of the Pelz drop-off for visitors. Renovations to the Pelz entrance enhance the plaza improvements. The new Academic Building frames the West end of the science quadrangle on the East and the Engleman drop-off on the West. It would displace parking that would be relocated to the Ella Grasso Garage.

Continuing the theme of providing additional parking for the campus at its periphery to improve internal circulation, the new Ella Grasso Parking Garage would be located along Crescent Street to provide additional parking in this area. The visual impact of this new garage would be minimized through screening with the proposed Fine Arts building fronting the garage on Crescent Street.

On West Campus, improvements would be similarly visually appealing. West Campus south of Wintergreen Ave currently consists of a number of six-story residential halls built around the standard model of the 1950's and 1960's. This model is typically defined as a multi-story building with a central corridor and double bedrooms on each side, shared bathrooms, and common space on the ground floor. In general, these residential facilities on west campus are overcrowded and outdated. In some cases, rooms designed as doubles are being used as triples. Additionally, Brownell Hall is isolated from the other residential structures by a large parking lot.

The proposed changes to this area under the 2008 Plan, includes phase demolition of five of the existing residence halls, moving the Orlando House approximately 250 feet to the southwest from its current location, and replacement with new residential structures with additional capacity and contemporary layouts. Brownell Hall would remain, and the first structure and associated green space would replace the parking lot that isolates it. The three other new residential structures would replace the existing five buildings, with demolition and construction of each occurring sequentially to avoid interim loss of beds. A new campus clinic/wellness center would also be constructed adjacent to the Residence Hall parking garage, and new administrative support buildings including a data center and IT building would be constructed along Wintergreen Ave, replacing the current Granoff Health Center/Police Station and building, improving the appearance of campus in this area.

North of these residential areas, the parking lot near Moore Field House and the campus heating facility would be replaced with a 1,200 car parking garage and campus police station, which would be connected to an addition to the field house. This construction would screen the heating plant from view from Wintergreen Ave.

Similar to the 2004 Plan alternative, the improvements proposed as part of the 2008 Plan are intended to improve the appearance of campus, provide more distinct limits to the campus, and would not impact important aesthetic resources such as West Rock and Beaver Pond Park. SCSU is preparing a campus-wide landscape master plan to improve the appearance of campus. As such, there are no anticipated negative impacts to visual resources and thus no mitigation is proposed.

3.13 Toxic or Hazardous Materials

3.13.1 Existing Setting

This section addresses the presence or usage of toxic or hazardous materials on the SCSU campus, and the potential for adverse impacts on human health or the environment as a result of the proposed Master Plan projects. For the purpose of this EIE, the following available CTDEP files and databases were reviewed for site-specific information:

- CTDEP oil and chemical spills database,
- CTDEP UST/LUST databases,
- CTDEP hazardous waste files,
- *Environmental FirstsearchTM* report.

The results of the review are summarized below.

Oil and Chemical Spills

The majority of reported spills or releases at SCSU were the result of operations associated with the maintenance of fuel/heating oil tanks and science demonstration laboratories within Engleman, Jennings, and Morrill Halls. The following spills and releases were recorded in the CTDEP spills files and/or the *Environmental FirstsearchTM* report.

Table 3-7. Oil and Chemical Spill History

Date	DEP Case Number	Event
02/8/1973	NA	Ten gallons of No.6 fuel oil was spilled east of Fitch Street due to the malfunction of a level gauge on a Hess Oil Company truck.
11/24/1982	NA	Five hundred gallons of fuel oil was released and subsequently recovered through pumping and soil removal activities.
03/02/1982	NA	Five hundred gallons of No.6 fuel oil was released at the Fitch Street Power Plant due to a pipe failure. All oil was contained within a sump pit was recovered and pumped out.
02/02/1989	496-2-2-89	An anonymous complaint was submitted to local authorities regarding the discharge of an unknown quantity and type into a marsh area behind Pelts Gym. Possible source was the discharge of filter backwash from the swimming pool.
09/24/93	935163	Container mixed batch waste chemical failure in Jennings Hall,
10/12/93	935564	One gallon of gasoline overfill during heavy rainfall some migrated to a storm drain
11/01/93	935964	Ten gallons of hydraulic oil were spilled.
1996	9603637	Illegal discharge of motor vehicle fluids through floor drains and a slop sink into an open pit rear of garage.
1997	9703914	In a container failure one gallon of antimony pentachloride spilled inside Jennings Hall

Date	DEP Case Number	Event
05/08/97	9702279	In a container failure, one gallon of hydrochloric acid was spilled inside Jennings Hall.
10/06/97	9705706	In a container failure, one gallon of tetrahydrofuran borane was spilled.
01/22/98	9800381	Reported dumping of one gallon of 2,4 dinitro phenylhydrazine
02/02/98	9800611	In a container failure, six gallons of formaldehyde spilled inside Jennings Hall
01/04/02	200200091	Twenty-five gallons of No.2 fuel oil was released due to a hose failure on a fuel truck.
06/06/02	200203757	Mercury manometer broke in Jennings Hall.
07/30/03	200305581	Removal of petroleum and urban fill in soil at site location to be designated as new student center
06/29/04	200404328	Thirty gallons of hydraulic oil was released from a dump truck located next to Moore Field House.
07/22/04	200404972	Ten gallons of diesel fuel was released due to a fork lift rollover.
03/22/05	200501613	Twenty gallons of hydraulic oil was released due to a hose failure.

Underground Storage Tanks

A review of documents available at the CTDEP and DPW indicated that five underground storage tanks (USTs) were replaced/retrofitted in 1997 and that nine USTs were abandoned or closed in place in 1999. According to the SCSU Director of Facilities, three USTs, two 40,000-gallon and one 18,000-gallon spillover UST, were installed during the upgrade of the Physical Plant in 2003 and 2004. In addition, the following USTs were replaced/retrofitted in October 1997:

Table 3-8. On Campus Underground Storage Tanks

Tank ID	Capacity (gal)	Contents	Status	Location
C4R1	10,000	No.2 fuel	Replaced	Schwartz Hall
FR1	2,500	Diesel	Replaced	Jennings Hall
M	600	Diesel	Replaced	North Campus Complex
JR1	600	Diesel	Replaced	Engleman Hall
L	600	Diesel	Retrofitted	Granoff Health Center

The 600-gallon UST located at the Granoff Student Health Center was installed in September 1993 and was retrofitted at the time the other USTs were replaced. The following USTs were abandoned or removed in 1999:

Table 3-9. Former On Campus Underground Storage Tanks

Tank ID	Capacity (gal)	Contents	Installed	Location
A1*	20,000	No. 4 Fuel	1952	Central Heating Plant

Tank ID	Capacity (gal)	Contents	Installed	Location
A2	30,000	No. 6 Fuel	01/1965	Central Heating Plant
B3	30,000	No. 6 Fuel	01/1965	Central Heating Plant
D5	2,000	Gasoline	01/1977	Maintenance Garage
E	500	Diesel	01/1965	Central Heating Plant
H	550	Diesel	01/1987	Maintenance Garage
G	550	No. 2 Fuel	01/1987	Maintenance Garage
I	550	No. 2 Fuel	01/1988	Carpenter Shop
X	550	No. 2 Fuel	est. 01/1987	Physical Plant #2

*Tank A1 was cleaned and abandoned in place while all others were removed from the site.

One of the 30,000 gallon USTs was reported as a leaking underground storage tank. Additional closure activities have not been documented since 1999.

Hazardous Materials

Because there are buildings on campus that were constructed before 1980, the potential exists for asbestos-containing-materials (ACM), polychlorinated biphenyls (PCBs), and/or lead-based paint (LBP) to be present in these buildings. At one time, the University had a number of electrical transformers containing PCBs as part of the electric power distribution system on the campus. These were removed as part of a PCB abatement program. Three transformers were retrofilled at Connecticut Hall in November of 1990, and the remaining six transformers on campus were removed and replaced at varied locations in August 1991. There are no PCB transformers currently on the campus.

The steam piping associated with the old Physical Plant contained ACM and was abandoned in place. With the construction of the new Physical Plant, new underground piping associated with steam and high-temperature hot water distribution was installed. The new piping does not contain ACM.

Hazardous Waste

Hazardous chemicals are used in various locations around SCSU, most notably in demonstration labs within Engleman, Jennings, and Morrill Halls and in the Art Department at Earl Hall. Weekly inspections are conducted to monitor the quantity of material stored in hazardous waste accumulation areas. When sufficient quantity is reached, a waste disposal contractor is contacted to haul the material off-site, which is a standard practice and policy of the University.

Hazardous waste may also be located in the vehicle maintenance and storage area inside the Physical Plant building. The floor drain in the vehicle maintenance area is equipped with a 1,000-gallon oil-water separator. There are no other vehicle storage and maintenance areas on the campus.

3.13.2 Impact Evaluation and Mitigation Measures

2004 and 2008 Campus Master Plan Alternatives

Implementation of either the 2004 Plan or 2008 Plan alternatives could result in a number of direct and indirect impacts related to toxic or hazardous materials, with similar impacts for each alternative.

Previous oil or chemical spills on campus were either cleaned and/or remediated. Master Plan implementation activities would not affect areas of the campus where previous spills or releases had occurred. Soil excavation should include a protocol for sampling and analysis of potentially contaminated soil. If contaminant levels are encountered that exceed applicable criteria of the Remediation Standard Regulations, the material may be considered a special waste and requires written authorization from the CTDEP for disposal at a solid waste disposal facility.

Construction of the Master Plan improvements, including demolition or renovation of buildings, will generate solid waste. For all buildings that are proposed for renovation or demolition where ACM or LBP are known or suspected to exist, pre-demolition or pre-renovation inspections will be conducted in accordance with Connecticut Department of Public Health regulations. Where present in buildings scheduled for demolition or renovation, LBP, ACM and/or PCBs would be removed and disposed in accordance with applicable federal, state, and local regulations. Demolition waste would be handled and disposed or reused in accordance with applicable solid waste statutes and regulations.

Construction of new laboratory facilities would result in an increase in the quantity of hazardous chemicals used and resulting hazardous wastes generated on campus. New facilities would be subject to applicable State and Federal hazardous waste regulations and associated management requirements, as well as the existing SCSU hazardous waste management policy.

3.14 Energy (Use and Conservation)

3.14.1 Existing Setting

Energy consumption on the SCSU campus is the result of building heating and cooling, and electrical usage associated with lighting and equipment operations. Fuel sources associated with these activities are primarily oil and electricity. As described in the Section 4.16 (Utilities and Services), the SCSU campus is served by a Central Utility Plant that provides steam for heating, chilled water for cooling, and emergency power supply for the campus. Natural gas and electricity are provided to the campus by Connecticut Natural Gas (CNG) and United Illuminating (UI), respectively. Energy usage within individual buildings is a function of the age of the building and its mechanical and electrical equipment and the programmatic function of the building. For example, buildings with older less energy efficient equipment tend to be greater consumers of energy. Likewise, a building with more demanding operating requirements for heating, cooling, ventilation, and equipment, such as a laboratory building, tends to have more sizable energy usage than other institutional buildings of the same size.

The SCSU Campus is served by a combination of public and private electrical utilities. UI provides only transmission and distribution of electricity. The electricity is purchased by UI from various sources that utilize fossil fuel, hydropower and nuclear power to generate electricity. The system receives 13.8 kV power from UI and then distributes power via a 13.8 kV dual loop distribution system. Demand on the campus from a 12 month period from Fall of 2006 through Fall of 2007 was approximately 388,500,000 kilowatt-hours. (Pers. comm., 2007).

Emergency power on the west side of campus is provided by a 0.5 megawatt generator, which replaced a 54-year-old power plant, that provides emergency power to dormitories, food service, campus police, the health center, and power plant in the event of an emergency. Many buildings on the east side of campus are connected directly to power lines along the street. In an emergency, there are generators for these buildings.

3.14.2 Impact Evaluation

The proposed 2004 Plan and 2008 Plan both include similar impacts relative to energy use. The proposed plans would involve expansion of and connection to the existing campus-wide steam, chilled water, natural gas, electricity, telecommunications, emergency power, potable water, sanitary sewer, and storm drainage. The direct impact of the Master Plan projects would be an increase in energy demand created by the need to heat and illuminate new and expanded campus buildings. Overall the square footage of the campus building space would nearly double if the 2004 Plan is implemented, with 2,360,000 gross square feet of new construction and renovation. If the 2008 Plan is implemented, campus building space would also significantly increase, and approximately 1,824,000 gross square feet of building space will be newly constructed or renovated.

Energy consumption associated with SCSU includes hot water, heat and electricity for the residential, academic, athletic, and administrative facilities. Infrastructure associated with energy distribution on the SCSU campus are owned by the State of Connecticut.

Electrical service would be extended to the anticipated new buildings. SCSU Facilities and UI officials indicate that there is sufficient electrical supply to accommodate the proposed project (Norton, pers. comm., 2007).

The University has a plan in place to promote energy conservation on the SCSU Campus. The use of energy conserving features and fixtures will help to minimize electrical usage. One of the aims of new building designs is to make use of natural light and reduce the need for artificial light sources. The proposed projects are not anticipated to result in a significant impact to electrical utilities.

Potential increases in energy consumption at the proposed facilities are somewhat offset by the fact that the new facilities would meet or exceed the standards for energy efficient design established by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE Standard 90.1-1989R). Furthermore, DPW also requires that all new projects over \$5 million or renovation projects over \$2 million strive to meet LEED Silver standards and criteria

as applicable (DPW 2008). Specific energy efficient features that would be incorporated into the design include, but are not limited to:

- On-off occupancy sensors,
- Energy efficient motors,
- Carbon monoxide monitors on air returns to optimize fresh air intake,
- Automated programming for heating and cooling that includes a holiday routine schedules,
- Energy efficient lighting.

Additionally, several UI programs are available to provide financial incentives to include energy efficient materials and systems in a project. Architects and engineers designing DPW projects are required to participate in the programs that the projects qualify for, and are required to attend meetings with and provide information to the utilities to ensure that the maximum incentive for the state is obtained (DPW 2008).

As discussed in Section 3.17, there is sufficient utility capacity available to supply the proposed projects. Increased consumption may occur with the construction of the facilities, but would be somewhat offset since the Plans would result in the consolidation of some existing activities and facilities. Furthermore, no significant impact to energy resources are anticipated to occur as a result of either alternative due to a comprehensive approach to energy efficiency in new building and renovation designs.

3.14.3 Mitigation Measures

Proposed campus projects under both the 2004 and 2008 Campus Master Plan alternatives, including the new parking garages, will include a variety of measures to conserve power. The design will incorporate custom measures to increase energy efficiency of the existing building systems, equipment, and processes.

The installation of sub-meters in each of the main buildings on campus has enabled SCSU to track and record how much electricity is used, where, and at what times. Plant managers can shift loads or alter power demands without negative impact on campus operations. By virtue of its sub-metering installations, SCSU reduces energy costs through energy management opportunities identified through energy monitoring data.

New construction will nearly double the overall square footage of campus buildings. However, it offers the University the opportunity to replace a number of outdated buildings, particularly in the 2008 Plan by replacing outdated resident halls. Replacing older, more energy-intensive buildings with new, energy-efficient buildings may lead to less energy consumption.

The Connecticut State University System has completed several LEED certified buildings. The SCSU campus was awarded a LEED certification in 2006 by the U.S. Green Building Council for the West Campus Residence Complex, which opened in 2004. Working towards energy conservation and less energy-intensive buildings has been and will continue to be part of the design phase of the Master Plan. SCSU has signed onto the American College & University

Presidents' Climate Commitment. Southern President Cheryl J. Norton's signature on this important document represents the university's dedication to environmental responsibility.

The *Conservation and Development Policies Plan for Connecticut (2005-2010)* conveys state policy for energy conservation. This plan includes a policy of increasing energy efficiency in buildings and encouraging the use of energy-efficient building design. The State of Connecticut also requires that a Life Cycle Cost Analysis be completed for any new building construction funded by the state (CGS Section 16a-38). The analysis is performed as part of the final design for a building with review by the DPW. The DPW will implement a review process which will require that the appropriate building systems will be selected by comparing three conventional systems based on Life Cycle Costs, including initial capital costs, fuel usage, fuel costs, operating and maintenance costs.

Connecticut has also implemented the *Connecticut Climate Change Action Plan 2005 – CGS 22a-200a* that includes measures for reduction of greenhouse gas emissions. This plan specifically recommends that new construction and major renovations of building projects that receive some state funding, including campus buildings, meet LEED standards and receive U.S. Green Buildings Council certification.

3.15 Public Health and Safety

3.15.1 Existing Setting

SCSU has a full time police force located adjacent to Granoff Student Health Center along Wintergreen Ave. The force is staffed by 27 officers connected through a dispatch center that monitors building fire and security alarms and receives calls through the 911 phone system. The center also monitors numerous direct dial extensions around campus including 63 emergency blue light phones posted at convenient and accessible locations around campus. The University Police also monitor 25 closed circuit television cameras located around campus. The police station is open every day of the year. The Space Needs Analysis performed as part of the 2004 Campus Master Plan found that the police station is approximately 36% undersized to meet existing needs. The 2008 Plan indicates that, although the location is appropriate for their requirements, there is inadequate holding room, no secure evidence storage and a lack of office and meeting space for the officers and administrative staff.

The campus is served by the Granoff Student Health Center that is staffed by nurses and physicians that provide ambulatory medical care, testing, and nutritional services. The health center does not routinely provide emergency care. Emergency cases are dispatched to nearby hospitals. The Space Needs Analysis performed as part of the 2004 Campus Master Plan found that the health services is approximately 36% undersized to meet existing needs.

3.15.2 Impact Evaluation and Mitigation Measures

2004 Campus Master Plan Alternative

The 2004 Plan proposes security upgrades, including additional call boxes and fencing, as part of its first phase of implementation. This plan also includes demolition of Granoff Hall and

construction of a new structure of approximately 44,000 assignable square feet that would predominantly be a fitness center but would also provide space for University Police and the clinic.

2008 Campus Master Plan Alternative

The 2008 Plan proposes construction of a Police and Public Safety area connected to the Moore Field House Garage that would include parking in the garage for public safety vehicles. This public safety structure would provide 4,630 assignable square feet for University Police which the 2008 Plan states would meet their needs. However, in addition to the potential of locating the new Police and Public Safety next to the Moore Field House, the current National Guard facility and land adjacent to the western end of campus along Wintergreen Avenue, could serve as a potential location for this campus use. This potential use is dependent upon the federal government's land disposal process. In either location, the Police and Public Safety building would not have any significant impacts.

The 2008 Plan also proposes construction of a new Wellness Center on the West Campus in the residential area. This area would include 6,620 square feet for primary care, wellness resources, counseling, and research and program development, which is intended to meet the needs of the clinic.

Since the proposed 2008 Campus Master Plan Alternative would provide adequate space for University Police and wellness needs, no mitigation is proposed.

3.16 Consistency with State Environmental Equity Policy

3.16.1 Existing Setting

The State Environmental Equity Policy was adopted in 1993 by the Department of Environmental Protection. The policy states that no segment of the population should, because of its racial or economic makeup, bear a disproportionate share of the risks and consequences of environmental pollution or be denied equal access to environmental benefits. This policy is similar to the federal Executive Order 12898, Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations, which requires federal agencies to avoid disproportionately high and adverse human health and environmental effects on minority and low income populations. The State Environmental Equity Policy does not specify guidance for identifying EJ populations. Therefore, methodology outlined in the federal Council on Environmental Quality publication Environmental Justice Under the National Environmental Policy Act (CEQ, 1997) was used in this analysis.

Data from the 2000 Census was used to identify minority and low income populations in the area of the SCSU campus. CEQ (1997) recommends that minority populations be identified where (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. "Minority" is defined as American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. CEQ (1997) recommends that low-income populations in an affected area should

be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty.

The SCSU campus is located within four Census tracts and five block groups. An additional tract and seven block groups are within the area surrounding SCSU ([Figure 3-11](#)). Data from the latest decennial census, Census 2000, on race and poverty status in 1999 was obtained for the five census tracts in the project area and the five census blocks that intersect the campus. Data on the City of New Haven and New Haven County was also obtained to provide some local and regional perspective on EJ populations in the area likely to be served by the SCSU campus ([Table 3-10](#)).

Table 3-10. Race and Income Census 2000 Data for Project Area

Area	Minority	Low-Income*
Tract 1413	61%	41%
Block Group 1	93%	62%
Block Group 4	33%	32%
Tract 1414	72%	21%
Block Group 1	61%	16%
Tract 1415	94%	20%
Tract 1655	67%	15%
Block Group 6	93%	22%
Tract 1657	39%	8%
Block Group 2	43%	16%
City of New Haven	56%	24%
Town of Hamden	23%	8%
New Haven County	21%	10%

*Percentage of persons living below the poverty level in 1999.

With the exception of Tract 1657, which includes the northwestern portion of the campus, all tracts have a minority population of greater than 50%. Examination of the spatial differences with the tracts in the project area show that Tract 1413, Block Group 4 that contains the southwestern portion of the campus south of Wintergreen Avenue and Tract 1657, Block Group 2 that covers the northernmost section of the western side of the campus, recorded 32% and 43% minority population, respectively, in the 2000 census.

The percentage of low income residents in the campus area is typically less than that found in the city. The highest percentage of low income residents area located in Tract 1413, located in the southwestern portion of the campus.

The data collected in the 2000 Census indicates the presence of EJ populations in the project area; minority populations of greater than 50% are located east of Fitch Street and both minority and low income populations are located west of Fitch Street and north of Wintergreen Avenue.

3.16.2 Impact Evaluation and Mitigation

2004 and 2008 Campus Master Plan Alternatives

Direct and indirect impacts occur if there is a disproportionate impact to EJ populations, i.e., a particular racial or income group bears a disproportionate share of the risks and consequences of environmental pollution, or if a particular income or racial group is denied equal access to environmental benefits. The Master Plan projects would not generate a disproportionate impact on EJ populations, regardless of which of the two alternatives (the 2004 Campus Master Plan and 2008 Campus Master Plan) is implemented. The proposed projects are located on the existing campus and are dispersed throughout the campus, not concentrated in a particular portion of the campus or encroaching on an adjacent neighborhood. In addition, several elements of the proposed Master Plan such as the redesign of campus-wide parking and the development of a campus-wide stormwater management plan would result in environmental benefits to the campus community and adjacent neighborhoods.

Because no adverse impacts are anticipated, no mitigation is proposed for either plan alternative.

3.17 Consistency with Adopted Municipal and Regional Plans

3.17.1 Existing Setting

The SCSU campus is situated on 172 acres of land at the boundary between the City of New Haven and the Town of Hamden. Most of the SCSU campus falls within the City of New Haven (approximately 146 acres of campus property). The study area portion of both Hamden and New Haven can be described as urban fringe. The land use is predominantly small lot residential with a mixture of single family, two family, and multi-family residential units. These residential areas include a number of publicly subsidized housing complexes, primarily in the vicinity of Cherry Ann Street in Hamden and south of Wintergreen Avenue in New Haven. Limited neighborhood or small scale commercial development occurs along the minor arterial routes in the study area and at arterial road intersections. For example, neighborhood or small scale commercial development can be found at the Blake and Fitch Street intersection in New Haven and along lower Fitch Street in Hamden. Dixwell Avenue to the east of the SCSU campus and Whalley Avenue to the south of the SCSU campus are major arterial routes through the area. Densely developed commercial land use abuts these roadways. However, both of these major arterials are located outside the study area boundaries.

The immediate vicinity of the SCSU campus is predominantly residential area interspersed with three parks. West Rock Park forms the western border of the campus. Beaver Pond Park forms the eastern border of the campus. Beaverdale Memorial Park is located within SCSU, along the west side of Fitch Street (shown in [Figure 3-10](#)) in the Cultural Resources section). The campus academic buildings are concentrated along the east side of Fitch Street and along Wintergreen Avenue. Buley Library lies at the core of the campus along with a cluster of academic and administrative buildings to the east and between Fitch and Crescent streets. Student housing is located at the northwest and southwest corners of the campus. Administration is focused in Engleman Hall near Crescent Street, the Wintergreen Transition Building between Wintergreen

Avenue and Jess Dow Field, and the Admissions building located on Farnham Avenue, with smaller administrative offices distributed throughout campus.

3.17.2 Existing Plans

Several local, regional and state plans and/or planning efforts have established goals and objectives for the study area.

Local plans include the municipal plans of development for Hamden and New Haven and the *New Haven Enterprise Community Strategic Plan*.

The City of New Haven adopted a new plan of conservation and development (POCD) in October 2003. This *Comprehensive Plan of Development, New Haven, Connecticut* provides the policy guidance for land use in the City. It focuses on future development opportunities and issues and environmental protection. Policy is established for housing development, neighborhood preservation, economic development, and the transportation system. The plan recommendations are articulated as directives of the City Plan Commission which are intended to describe both incremental and major changes.

This plan addresses several items of the interest in the area of the SCSU campus. The plan describes an area including Blake Street, Fitch Street, and the SCSU campus as having the potential for neighborhood revitalization, and identifies an area of planned development on Blake Street west of Wintergreen Brook. This development likely included new condominiums that were observed to be substantially complete in September of 2008, although additional details are not available in the Plan.

The City of New Haven defines land use surrounding Beaver Pond and campus pond as a natural area/park in both the POCD and the third edition of the New Haven Green Map, which is an informational map available from the City that presents park and open space areas. However, the City's mapping is inaccurate within the SCSU campus, in particular, the land associated with University Pond and the athletic fields is owned by the State of Connecticut and is not part of Beaver Pond Park. Therefore, any associated local plan elements associated within this area would apply to parkland that is owned by the City of New Haven.

The Town of Hamden implemented a new POCD in September 2004. The *Hamden Plan of Conservation and Development* offers guidance on long and short-term decision making regarding development and conservation within the Town. The focus is on how to best direct future development in Hamden. Revitalization of the distinct neighborhoods within Hamden is called for, although the plan does not call out any specific goals in the area of SCSU.

Regional planning efforts include the Regional Growth Partnership and Fiscal Year 2007 Transportation Improvement Program (TIP) for the South Central Regional Council of Governments (SCRCOG). The TIP identifies priorities for use of funds for transportation system improvements in the region. There are no TIP projects which will impact upon or be affected by the SCSU Master Plan projects.

The *2005-2010 Conservation and Development Policies Plan for Connecticut* (the Plan) contains economic, environmental quality, and public service infrastructure guidelines and goals for the State of Connecticut. The overall strategy of the Plan is to reinforce and conserve existing urban areas, to promote staged, appropriate, sustainable development, and to preserve areas of significant environmental value (OPM, 2005). The Locational Guide Map which accompanies the Plan provides a geographical interpretation of the state's conservation and development policies and priorities. According to the 2005-2010 Locational Guide Map, the SCSU campus falls partly within a Regional Center in New Haven and partly within a Neighborhood Conservation Area in Hamden. The highest priority state strategy for a Regional Center is to support rehabilitation and revitalization of the economic, social and physical environment of urban centers. The highest priority for a Neighborhood Conservation Area is to promote infill development and redevelopment in areas that are at least 80% built up and have existing infrastructure to support such development.

3.17.3 Impact Evaluation and Mitigation Measures

2004 and 2008 Campus Master Plan Alternatives

There will be no direct, indirect or cumulative adverse impacts to the predominant land use patterns in the vicinity of the SCSU campus for the projects proposed by either the 2004 or 2008 Campus Master Plan alternatives. All of the Master Plan projects would be constructed within the existing campus boundaries, and the projects are consistent with SCSU's academic mission.

The Proposed Action is consistent and supportive of the goals, objectives, and plans set forth in the State Plan, Regional Plan, and Local Plans, as it:

- Directly and indirectly supports the revitalization of the economic, social, and physical environment of New Haven and Hamden.
- Supports of stability of the community surrounding the SCSU campus and is consistent with the capacity of urban services there.
- Includes infill development of areas that are currently developed, rather than promote sprawl or development of currently-undeveloped areas.
- Will rely on existing infrastructure, rather than require construction of new infrastructure that could open new areas to development.

Since the proposed actions are generally consistent with State, regional, and local plans for conservation and development, and no adverse land use impacts are proposed, no mitigation is proposed for either the 2004 or 2008 Plan alternative.

3.18 Utilities and Infrastructure

3.18.1 Existing Setting

Existing public utilities and services that serve the SCSU campus include water, wastewater, natural gas, electrical, telecommunications and cable television. All utility infrastructure on the

SCSU campus is owned by the State of Connecticut. Qualitative information regarding the current status of utility service at SCSU has been provided by the SCSU Director of Facilities Engineering and Environmental Services (2007 and 2009), and Clough, Harbour & Associates, an engineering firm that prepared a utility master plan for the proposed Master Plan projects on behalf of SCSU in 1998. Figure 3-12 presents a schematic of existing utilities on campus.

The primary source of heating and hot water at the main SCSU campus is steam and high temperature hot water distributed from the Power Plant, located along Wintergreen Avenue. The Power Plant operates two 75 million British Thermal Unit (mBTU) hot water generators. Both are dual-fuel units. This is a modular unit that can increase capacity over time, as needed. High-temperature hot water is distributed to the majority of the campus. The current high temperature hot water distribution system was installed in 2004 with a design lifetime of 50 years. Currently, the peak capacity demand is 37 mBTU. The system is capable of peaking at 150 mBTU.

Electrical service at SCSU is currently provided by United Illuminating (UI). The campus electrical distribution system was updated in 2004. The update included dividing campus service into two main loops. The campus is fed from two points, splits in the middle, and any section can be easily isolated for repair. The East Campus loop is currently running at 20% of its capacity. The West Campus loop is currently running at 25-30% of its capacity.

United Illuminating is in the process of providing additional electrical service to meet the future needs of the SCSU Campus. Another feed to the campus will be run directly from a nearby UI substation.

Several permanent diesel-powered emergency generators are located on the main campus of SCSU. These generators supply emergency power to the following buildings: Jennings Hall, Pelz Gymnasium, Engleman Hall (two), Power Plant, and the Granoff Student Health Center (two). In addition, one 60-kilowatt trailer-mounted emergency generator and other smaller portable emergency generators are available for use as needed.

Potable Water Supply

The South Central Connecticut Regional Water Authority (SCCRWA) is a non-profit organization serving about 400,000 potable water consumers in 12 cities and towns in the New Haven area. The SCCRWA Service Area includes all or portions of Bethany, Branford, Cheshire, East Haven, Hamden, Milford, New Haven, North Branford, North Haven, Orange, West Haven and Woodbridge, which have an aggregate population of approximately 395,280 persons. It provides an average of 55 million gallons of water per day to consumers. On a day of peak demand, it may deliver up to 90 million gallons of water per day. Water is obtained from a system of reservoirs and wells in two towns. It uses a network of water treatment facilities, pumping stations, storage tanks, and hundreds of miles of pipe to deliver water.

The SCCRWA provides water for consumption and fire protection to SCSU through a network of water mains. Interior areas of the campus and buildings are served by 6-inch and 4-inch water mains and water lines have been installed throughout the athletic fields to provide irrigation. The current water service is adequate, and no capacity-related problems have been reported.

Fire protection lines serve the residence halls, academic facilities, and campus interior. New Haven and Hamden also provide fire hydrants and service lines along the perimeter of the main campus. Fire hydrants on campus are tested yearly.

Wastewater

Sanitary sewer discharges from the university are directed to the City of New Haven sanitary sewer system. In addition to normal sanitary discharges, waste streams from various laboratory and photo developing darkrooms also discharge to the sanitary sewer at the university. The only pre-treatment of sewer discharges currently occurring on the campus are a silver recovery system for photo processing rinse water from the main darkroom in Earl Hall and a limestone chamber for sewer discharges emanating from Jennings Hall. There are no current capacity concerns related to the main sewer lines on campus and the City of New Haven Water Pollution Control Authority previously reported that the City's sanitary sewer system should have adequate capacity to handle the SCSU development (DPW, 1998). However, some of the buildings on the SCSU campus have experienced occasional problems with clogging and capacity due to changes in building usage from intended use when the sanitary system within the buildings was designed.

Drainage

Southern Connecticut State University is drained by a traditional drainage system that currently includes few provisions for reducing peak discharge rates or providing water quality treatment. Surface water runoff discharges to Wintergreen Brook, directly to Beaver Brook, or to Beaver Brook via the Beaver Ponds. The campus is generally divided into twelve drainage areas, which are defined based on local topography and drainage system orientation.

The campus discharges to Wintergreen Brook via 12 stormwater discharge outfalls and either directly or indirectly to Beaver Brook via 14 outfalls. The Blake Street Bridge is the only hydraulic structure on Wintergreen Brook near campus.





The campus pond is hydraulically connected to Beaver Pond through a culvert. During significant precipitation events, the area between these ponds is known to flood, forming a single basin. Beaver Pond then discharges to Beaver Brook via a spillway and culvert below Crescent Street. The discharge location of the Crescent Street drainage system is unknown, although the drainage line is assumed to cross the Beaver Brook culvert through the Crescent Street culvert and discharge to the south basin of Beaver Pond. Beaver Brook hydraulic structures include the Crescent Street culvert (a 5-ft by 3.5-ft box culvert), the Fitch Street Bridge (a 5-ft elliptical culvert), and the Blake Street culvert. Drainage concerns in this area are presented in more detail in [Section 3.2](#).

The SCSU campus can be generally divided into 11 separate drainage areas. The following sections describes these areas based on available mapping as of the fall of 2007 and was supplemented with a site walk. [Figure 3-13](#) presents drainage systems located on campus.

**SOUTHERN CONNECTICUT
STATE UNIVERSITY
CAMPUS MASTER PLAN UPDATE EIE**

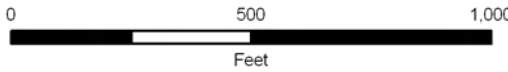
DPW Project BI-RS-250

Legend

-  SCSU Campus
-  Storm Drainage
-  Existing Buildings
-  Town



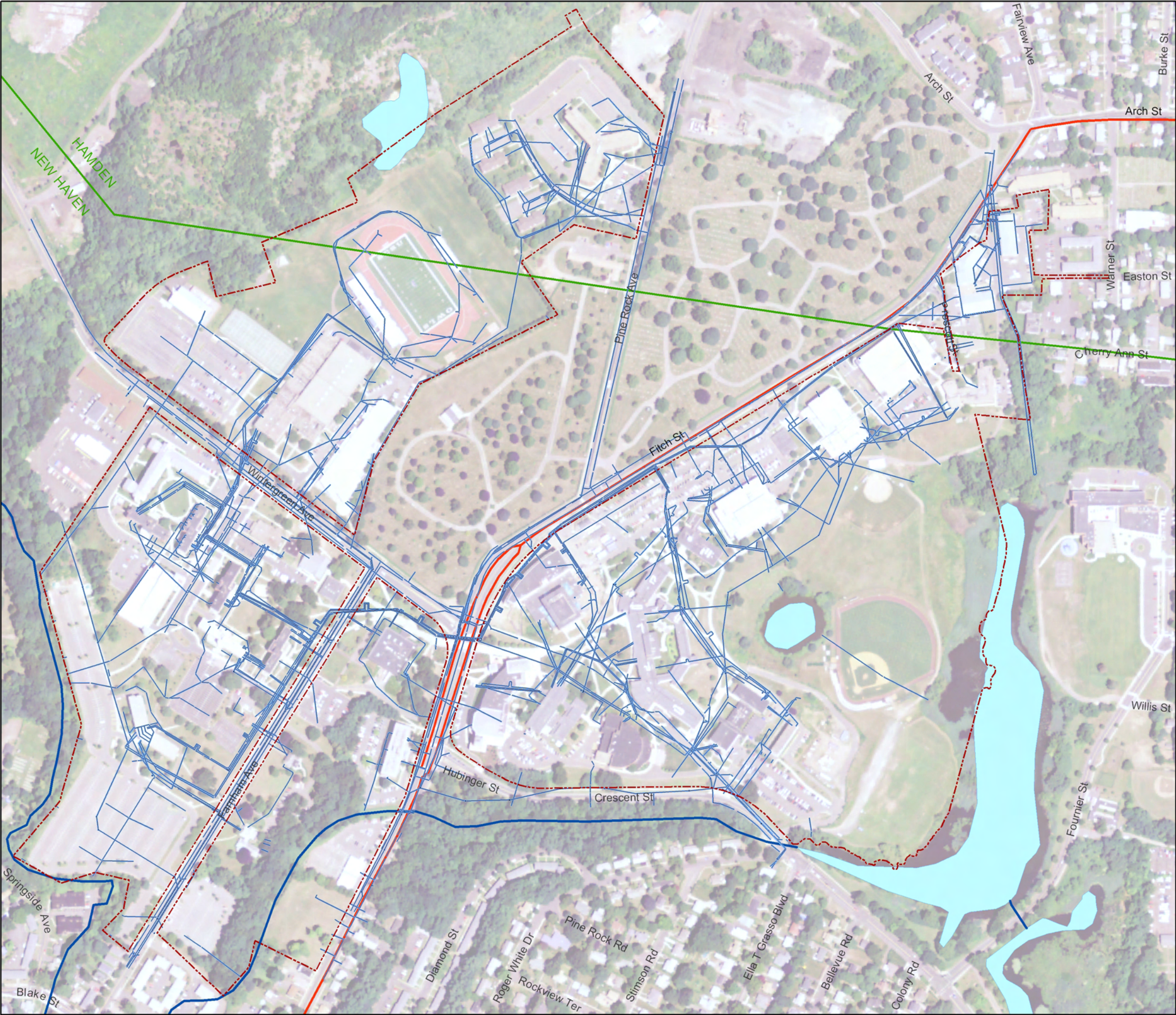
SCALE
1 INCH = 400 FEET



*Sources: CT DEP GIS Data,
NAIP 2008 Aerial,
SCSU Master Plan*

FIGURE 3-13

**EXISTING
STORM
DRAINAGE**



Davis Hall System

This is the easternmost on-campus drainage area. This drainage area of 8.1 acres includes Davis Hall, the Facilities Operations building and garage, and associated parking areas. Land cover in this drainage area is approximately 48% impervious. A 4 ft. by 10 ft concrete box conduit conveys Beaver Brook from off campus to the northern Beaver Pond, and the majority of drainage from this area is piped directly into this conduit. A portion of the drainage area discharges via overland flow south into Beaver Pond as well.

The parking lot for the facilities operations building includes three catch basins that discharge to nonfunctional infiltration systems. Stormwater that would otherwise infiltrate through these systems ponds and then discharges as overland flow.

Beaver Pond System

This drainage area is located on the eastern portion of the SCSU campus and includes portions of the old student center, Morrill Hall, Jennings Hall, Pelz Gymnasium, the Engleman Hall addition, a parking garage, and the portion of Parking Lot 2 that contained the former power plant. This drainage area also includes significant open space, including landscaped grassed areas surrounding campus buildings and unmaintained field grass surrounding the Campus Pond. The area between the campus pond and the Beaver Ponds contains a softball and baseball field. This drainage area currently consists of approximately 24% impervious cover, and the drainage area is approximately 44.9 acres.

The developed portions include a storm drain system that discharges to several outlets located along the grass slope upstream from the pond. This discharge, as well as stormwater from the majority of the open space areas, flows overland to the Campus Pond, which serves as a detention area. The pond then discharges to Beaver Pond through a 36-inch corrugated metal pipe. A small portion of this drainage area drains directly to Beaver Pond. During large precipitation events, Beaver Pond and the campus pond overtop into the low area surrounding the sports fields, forming a combined impoundment.

Crescent Street System

The Crescent Street System is located between Fitch Street and Crescent Street in the central portion of campus. This drainage area is intensively developed and contains portions of Parking Lot 2, Ralph Earl Hall, Engleman Hall, the older portion of the Buley Library, the Lyman Center, the old Student Center, and Seabury Hall. Drainage from the Buley Library addition was directed to Fitch Street to avoid directing additional flows to the Crescent Street system. The drainage area is approximately 17.6 acres in size. Approximately 52% of cover in this drainage area is impervious. The remaining cover is grass landscaping.

Drainage from this area is collected in a single storm drainage collector line of 18-inch diameter at the largest, which reportedly surcharges and overflows during large storms. The line is conveys flow from the northwest to the southeast across campus, where it discharges into the New Haven storm sewer system. The line is thought to cross the outlet conduit from Beaver Pond and continue along Crescent Street. The ultimate discharge location of this line was not available for this EIE.

Lyman Center System

The Physical Plant system is a small drainage area located between Crescent Street and the on-campus portion of the Crescent Street drainage system. This drainage area contains portions of Ralph Earl Hall, the Lyman Center, Parking Lot 5, and Crescent Street. The area dividing Lot 5 and the buildings from Crescent Street is a steep slope with grass and trees. This drainage area is approximately 3.7 acres in size and approximately 65% impervious cover.

Drainage in this area drains south to Beaver Brook through drainage lines below Crescent Street. Drainage from the developed areas at the top of the slope is collected by catch basins and drains directly to Beaver Brook. Some drainage flows overland down the steep slope before discharging to a catch basin. It was necessary to divide this drainage area into two portions to obtain a representative runoff estimate following construction of the new Adanti Student Center (see Section 3.3.5). The name of this system is now a misnomer, since former physical plant buildings were demolished for the new Adanti Student Center.

Student Center System

This small drainage area is located west of the Lyman Center system between Fitch and Crescent Streets. This area was considered a part of the Physical Plant System in the previous stormwater management plan. This area contains the majority of the new Adanti Student Center and surrounding areas. This drainage area is approximately 3.2 acres in size, of which approximately 75% is impervious cover.

Stormwater drainage from this area flows through a system of storm drains and discharges to the State drainage system on Fitch Street.

Schwartz Hall System

This drainage is relatively long and thin, surrounding Beaver Brook west of Fitch Street. This drainage area was not included in this previous Stormwater Management Plan, although it does contain on-campus areas including Schwartz Hall, Parking Lot 11, and portions of Connecticut Hall, the admissions building, and the Land Social Work Center. This drainage area is approximately 9.4 acres of size, of which 36% is estimated to be impervious cover. Approximately 3.3 acres of this drainage area is a wooded riparian area associated with Beaver Brook.

Stormwater drainage from this area generally flows overland directly to Beaver Brook, although there is a small storm drainage system associated with Schwartz Hall and Parking Lot 3 that drains south to Beaver Brook.

Fitch Street System

The Fitch Street drainage area is a new drainage area was not included in the 2000 Stormwater Management Plan but is now included to evaluate possible effects of an expansion to campus in this area. This drainage area is located along Fitch Street to the south and east of Beaver Brook. This drainage area currently includes the Ethnic Heritage center buildings along Fitch Street, Parking Lot 10, and two residences. Several residential structures located in this area have been demolished and the area grassed. The area is approximately 4.2 acres in size, includes 42%

impervious cover and 1.3 acres of woods associated with Beaver Brook. It is important to note that the majority of this drainage area is mapped as 100-year or 500-year floodplain.

Stormwater from this area flows generally overland to the west, discharging directly to Beaver Brook. There are storm drains on Fitch Street, although it is unclear if they discharge north or south. These drains do not appear to collect drainage from this area other than street drainage.

Lot 9 System

The Lot 9 drainage area is located along the western boundary of campus along Wintergreen Brook and extending upland. This drainage area includes much of Parking Lot 9, Parking Lot 4, Brownell Hall, portions of the Farnham and Wilkinson Residential Halls, Orlando Hall, and landscaped areas. The drainage area is approximately 15.2 acres in size, 57% impervious in cover, and includes approximately 1.7 wooded acres associated with Wintergreen Brook.

Drainage from this area generally flows overland before entering the drainage system associated with Brownell Hall and Lot 9. This system generally conveys drainage to the southwest, where it is discharged to Wintergreen Brook through one of a number of outfalls.

Fieldhouse System

The Fieldhouse System is the largest drainage area on campus. This system is located from Parking Lot 9 along Wintergreen Brook beyond the northern limit of campus and extends upland to Jess Dow Field. Notable on-campus features of this drainage area include the new Residence Hall Parking Garage, the West Campus residence complex, Moore Field house, part of the temporary Wintergreen building, the new power plant, Jess Dow Field, and Parking Lots 6 and 7. Off-campus features include the Army Reserve Station and two ponds.

This drainage area is approximately 77.6 acres in size and consists of approximately 21% impervious cover. There are a number of drainage systems in this area, each of which discharges west to Wintergreen Brook. The largest of these lines is a 30-inch concrete pipe that receives drainage from the residence area, parking lots, and field house. The majority of the off-campus portion of the drainage area discharges as overland flow to Wintergreen Brook.

North Campus System

The North Campus drainage area is located at the northernmost boundary of the campus. This drainage area includes the North Campus Residence Complex, including four townhouses and the six-story student apartment building and associated parking areas. This drainage area is approximately 11.0 acres in size with 44% impervious cover and a weighted curve number of 81. Drainage from this area flows easterly overland until it is intercepted by the storm drainage system associated by the parking lots and access roads. This drainage system conveys the water east to the municipal storm sewer system at Pine Rock Ave, which conveys the flow to the north, away from campus.

Farnham Ave System

The Farnham Avenue drainage area is a long, narrow drainage area located between the Lot 9 system and the Schwartz Hall system. This area receives drainage from Farnham Ave, the Admissions, Lang Social Work, and Orlando houses, as well as Parking Lot 3, Connecticut Hall,

two temporary buildings, and a portion of the Wintergreen Building and Wintergreen Avenue. Currently, this drainage area is approximately 13.5 acres in size and is covered by an estimated 45% impervious areas.

Storm drainage in this area flows to a traditional storm sewer system which begins in the parking area for the Wintergreen Building. Water is then conveyed south below Wintergreen Avenue, and discharges into the Farnham Avenue storm drainage system. Stormwater is then conveyed southerly along Farnham Ave to the southern limit of campus.

Representatives from Fuss & O'Neill met with facilities and planning personnel from SCSU on September 24, 2007 to discuss on-campus drainage concerns. Campus personnel identified the following areas where insufficient drainage capacity exists:

- Blake Street Culvert for Beaver Brook - This bridge is a major restriction on Beaver Brook. The bridge is reportedly undersized to pass moderate to high discharges of Beaver Brook, and results in a tailwater condition that floods properties now owned by the SCSU on Fitch Street and on-campus parking lots including Lots 10 and 11. The frequency of flooding of these areas is reportedly much greater than once in 100 years. The limits of the 100-year and 500-year floodplains, shown in [Figure 5](#), are near Fitch Street. This flooding needs to be considered if additional development of this area is proposed.
- Blake Street Bridge over Wintergreen Brook - This bridge is a restriction on Wintergreen Brook. The bridge is reportedly undersized to pass moderate to high discharges of Beaver Brook, and results in a tailwater condition that floods much of Parking Lot 9. The frequency of flooding of this area is reportedly much greater than once in 100 years. The bridge was washed out during storm events in 2001 and has been reconstructed, although its hydraulic capacity has not been increased.
- Crescent Street Drainage - A significant portion of campus, including the Buley Library and Engleman Hall, is drained via a stormwater line that begins at Parking Lot 2 and conveys drainage south to Crescent Street. The drainage area is approximately 17.6 acres, consisting of approximately 60% impervious surface, while the drainage line is 18 inches in diameter at its largest. During heavy precipitation events, inadequate capacity causes the system to surcharge and discharge through grates and manholes. The restriction has been reported to surcharge partway up the Buley Library roof leaders.
- Facilities Operations Parking Lots - Three the catch basins in this area drain to infiltration sumps or galleries that have been constructed under the parking lot. Although they once functioned properly, the sumps have ceased to infiltrate water, resulting in ponding in the parking areas. The systems are not thought to include treatment prior to infiltration, so the cause of the failure is likely to be clogging with fine particles and other material.
- Practice Field near Moore Fieldhouse - This area was reported in the previous stormwater management plan to be an area of drainage concern. The field becomes muddy during

the spring and periods of heavy precipitation, although it does not flood. The plan mentioned the field's drainage is poor and the soils lack infiltration capacity.

Solid Waste

Solid waste disposal is currently managed on the SCSU campus by a licensed private hauler that transports the waste for disposal at a licensed solid waste landfill. SCSU also has an ongoing recycling program with materials collected by varied vendors on a regular basis. Trash and source-separated recycling receptacles are located outside along campus walkways and in academic, administrative, and residential buildings. During the Spring of 2009, SCSU is participating in a 'recyclemania' competition where SCSU will compete with other university recycling programs on a total recycling quantity and per-capita recycling rate basis.

Telecommunications

The telecommunications system at SCSU is managed by the SCSU Office of Information Technology. Infrastructure, technical support, and management of voice, video and data networks are handled by this office. The voice network was updated in 2006 and included installation of new state of the art voice servers that can handle running voice protocols over a data network. Fire protection, security, and environmental monitoring services are delivered across fiber installed and maintained by SCSU Facilities Department.

3.18.2 Impact Evaluation

Based on qualitative information provided by SCSU, additional construction at SCSU has been anticipated in terms of utilities capacity, and major infrastructure improvements have been completed preemptively. As such, implementation of either the 2004 or 2008 Campus Master Plan Alternative is possible within the limits of the existing utility capacity. Where renovation and addition is proposed, the capacity and orientation of building wastewater service will be assessed and the pipes upgraded if necessary.

Potable Water and Sewer

The Master Plan projects are not anticipated to place any substantial increased demand on the existing water services available in this geographic area of New Haven. It is also anticipated that there will be no substantial increased demand on the water and sewer service within the campus boundaries which would require major improvements as part of Master Plan implementation. However, proposed building usage changes associated with the Master Plan implementation may conflict with existing design capacities of sewer systems associated with some buildings.

Drainage

As presented in Section 3.5, campus development may impact the quantity of runoff from campus, which could affect drainage patterns and flooding. In general, increasing the quantity of impervious surface in a drainage area, or reconfiguring impervious surface such that it drains

more directly to receiving waters, tends to increase peak discharge rates and shift those peaks forward in time. Increasing peak discharge rates and shifting forward peaks such that they may coincide could overwhelm drainage systems that are currently oversized or further overwhelm drainage systems that are already failing. The following present impacts that would be anticipated following implementation of campus design concepts.

2004 Campus Master Plan Alternative

A draft concept hydrology model of the campus created as a companion to the 2004 Campus Master Plan identified five drainage areas where the quantity of impervious surface is likely to increase relative to existing conditions (Davis Hall, Crescent Street, Fitch Street, Fieldhouse, and Farnham Ave systems) and six drainage areas in which the quantity of impervious surface is likely to decrease (Beaver Ponds, Lyman Center, Student Center, Schwartz Hall, Lot 9, and North Campus systems). Under this alternative a net campuswide increase in impervious surface area is likely, with corresponding increasing peak flows. The Davis Hall and Crescent Street drainage systems both have existing drainage problems that increased impervious surface could exacerbate.

2008 Campus Alternative

An impervious surface estimate and hydrology model is being prepared for the 2008 Campus Master Plan alternative to assess changes in runoff characteristics that may result from proposed projects. This model was not available for the writing of this EIE. However, a preliminary qualitative assessment was performed in an attempt to identify areas of potential significant changes in impervious area. Increases in impervious area are likely to occur in four campus drainage areas (Crescent Street, Schwartz Hall, Fitch Street, and Fieldhouse systems) following 2008 Plan implementation.

Decreasing impervious area is likely in only two drainage areas (Beaver Pond and North Campus systems), and insignificant change in impervious area is likely in five campus drainage areas (Physical Plant, Student Center, Davis Hall, Lot 9, and Farnham Ave system). It is likely that the net change in impervious cover on campus resulting from 2008 Plan projects is greater than the increase that would result from 2004 Plan projects. The Davis Hall and Crescent Street drainage systems both have existing drainage problems that increased impervious surface could exacerbate.

Solid Waste

Demolition and renovation of campus buildings proposed by the Master Plan alternatives will result in the generation of demolition debris and waste. The disposal of demolition waste will be handled in accordance with applicable solid waste statutes and regulations. Demolition debris may be contaminated with asbestos, lead-based paint or chemical residues and require special disposal. Land clearing debris and waste other than clean fill (natural soil, rock, brick, ceramics, concrete and asphalt paving fragments) resulting from demolition activities is considered bulky waste, which will be disposed of at a permitted landfill or other solid waste processing facility.

Universal waste, which may contain mercury, lead, Freon, and other hazardous constituents, could also be generated from building renovation and demolition activities. Such wastes potentially include:

- Batteries (e.g., for emergency lights and security systems),
- Sprinkler system contacts,
- Fluorescent lamps including PCB ballasts,
- Cathode ray tubes (e.g., computer monitors),
- Electronic equipment (e.g., circuit boards),
- Air conditioning equipment,
- Gas regulators,
- Thermostats.

Universal waste will be segregated from the demolition debris waste stream and recycled in accordance with Section 22a-449(c)-113 of the RCSA.

There will be no direct, indirect or cumulative adverse impacts on the availability of public utility services as a result of Master Plan implementation in the service region which includes SCSU.

Telecommunications

The proposed Master Plan improvements are anticipated to result in an immediate (Phase I) need for additional telecommunications cabling to support the requirements of the fire protection and security monitoring systems in areas of proposed expansion. Additional power and UPS capability in the existing Data Center will also be required. Both the 2004 and 2008 Plan alternatives consider adding additional information technology space. However, the 2008 Plan proposes to provide a new data center which is likely to better serve campus needs.

3.18.3 Mitigation Measures

The majority of utilities associated with campus were planned considering a built-out condition of the campus and have adequate capacity. It is important to note that the 2008 Plan appears to better consider campus data needs through construction of a new data center, which is not specifically proposed as part of the 2004 Plan Alternative.

For development that may result in increased impervious surface and associated peak runoff rates and pollutant loads, mitigation will be required to provide treatment and attenuate peak discharge rates. These measures are discussed in more detail in [Section 3.5](#).

For instances where existing stormwater drainage problems are present, such as drainage pipes surcharging during large storms, certain mitigation measures such as expanding pipe capacity could result in adverse downstream hydrologic impacts, such as exacerbating existing flooding, which would not be consistent with both the flood management statutes of CGS Sections 25-68b through 25-68h and the *Connecticut Stormwater Quality Manual*. The Drainage Master Plan that is under development for the campus will contain a framework for solving existing drainage

problems. Potential measures to reduce flooding could include a combination of LID and traditional stormwater discharge reduction measures.

Proposed connection to water, sewer, and storm systems should be coordinated with appropriate City departments prior to construction. Sewer line capacity should be confirmed prior to building renovation or expansion to determine whether service is adequate. Construction and demolition debris will be segregated on-site and reused or recycled to the extent possible to reduce the need for landfill disposal. Minimum reuse/recycling goals will be set in construction contracts. Contract design provisions will be added to allow for source separation of recyclable materials for project buildings. Building construction materials with recycled content will be used to the extent practicable.

3.19 Cumulative Impacts

CEPA regulations require that the sponsoring agency consider the cumulative impacts of its actions. Cumulative impacts are those that result from the incremental impact of the proposed action when added to impacts of other similar proposed or foreseeable actions by the sponsoring state agency.

The nature of the SCSU Master Plan is to consider the cumulative impacts of campus development. As such, the cumulative impacts of all projects that are planned have been considered in this EIE.

3.20 Construction Related Impacts

Traffic, Parking, and Circulation: During construction of the Proposed Action, temporary impacts may occur to vehicle circulation patterns and parking in the downtown area within and near the project site. Transport of construction materials to the site from Interstates 91 and 95 and other major arterial roads will involve significant construction-related traffic. Construction vehicles may temporarily obstruct traffic during construction activities. Construction activities may also require temporary lane closures on streets within the project site. Sidewalks in areas of the project site may be temporarily and periodically closed to pedestrian access during the construction period. These impacts would be short-term, lasting only during construction.

Construction-phase traffic management measures will be implemented to maintain efficient traffic and pedestrian circulation and adequate parking during the construction period. Impacts to traffic and parking during construction will be mitigated through development and implementation of a traffic and circulation management plan, including construction phasing to minimize disruptions to traffic, signage, detours, directions to alternate parking locations, and police officers to direct traffic and assist with pedestrian street crossings. The plan will also identify construction staging and temporary parking areas to replace on- and off-street parking that will be temporarily lost during construction. A separate traffic and circulation management plan will be developed and implemented for each phase of the development.

Air Quality: Potential construction air quality impacts can occur due to the use of diesel-powered construction vehicles. Diesel air emissions include carbon monoxide, hydrocarbons, nitrogen

oxides, and particulate matter (PM₁₀). Emissions from construction equipment are anticipated to be significantly less than the total emissions from other industrial and transportation sources in the region, and therefore, are expected to be insignificant with respect to compliance with the NAAQS. However, potentially localized air quality impacts could occur as a result of diesel exhausts from construction equipment in the vicinity of the project site. Potential air quality impacts from diesel exhausts will be addressed through compliance with DPW's Diesel Emission specifications for construction contracts. The contract mitigation measures incorporate the following:

- Diesel powered non-road construction equipment will include retrofit emission control devices (diesel oxidation catalysts) to reduce diesel emissions. In general, these specifications will apply to diesel powered non-road construction equipment with engine horsepower ratings of 60 that will be used on the project or assigned to the contract for a period in excess of 30 consecutive days.
- Proper operation and maintenance of construction equipment, and prohibition of excessive idling of engines. Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies limits the idling of mobile sources to 3 minutes.

Roadway traffic disruption due to lane closures, detours, and construction vehicles accessing the site can cause congestion which can increase motor vehicle exhaust emissions. These impacts will be mitigated by implementing appropriate traffic management techniques during the construction period.

Fugitive dust emissions can occur during ground excavation, material handling and storage, movement of equipment at the site, and transport of material to and from the site. Fugitive dust is most likely to be a problem during periods of intense activity and would be accentuated by windy and/or dry weather conditions. Potential air quality impacts from fugitive dust will be addressed through the following mitigation measures, which will be incorporated into contract specifications for the project:

- Reducing exposed erodible earth area to the extent possible through appropriate construction phasing.
- Stabilization of exposed earth with grass, pavement, or other cover as early as possible.
- Application of stabilizing agent (i.e., calcium chloride, water) to the work areas and haul roads.
- Covering, shielding, or stabilizing stockpiled material as necessary.
- Use of covered haul trucks.
- Limiting dust-producing construction activities during high wind conditions.
- Rinsing of construction equipment with water or any other equivalent method to minimize drag-out of sediment by construction equipment onto the adjacent roads.
- Street sweeping of roads within construction areas.

Noise: Construction activities are a potential source of short-term noise impacts. It is difficult to reliably predict the sound levels that may occur at a particular receptor or group of receptors as a result of construction activity. Heavy construction equipment is the principal source of noise during construction activity, and the pattern of heavy equipment use is constantly changing as a

construction project progresses. For the most part, construction activity occurs during daytime hours when higher sound levels are generally more tolerable at nearby receptors. In addition, any adverse noise impacts due to construction activities would be temporary in nature, and no one receptor is expected to be exposed to high sound levels due to construction for an extended period of time. Potential noise impacts during construction will be addressed through the following mitigation measures, which will be incorporated into the contract specifications for the project:

- Compliance with Connecticut's Noise Regulations contained in section 22a-69-1 through 22a-69-7.4 of the Regulations of Connecticut State Agencies.
- Restriction of work to daytime hours (7:00 a.m. to 10:00 p.m. local time, consistent with the Connecticut Noise Regulations), proper maintenance of equipment, and advance notification of nearby sensitive receptors of activities that may produce excessive sound levels.

Stormwater: All DPW project that require site work require a "Soil Erosion and Sediment Control Plan" or a "Stormwater Pollution Control Plan." (DPW 2008) The latter is required for projects with soil disturbance of greater than one acre by the DEP *General Permit for the Discharge of Stormwater and Dewatering Wastewater from Construction Activities*. The former is required for construction activities that disturb less than one acre. Both types of plans require the implementation of measures to prevent pollution in discharged stormwater and will be consistent with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*.

Energy: Construction-related energy usage would produce a one-time energy demand including the energy utilized in the production of construction materials.

4 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

The unavoidable adverse impacts from the Proposed Action are anticipated to include the following:

- Increased traffic on the roadway network and at intersections on and in the vicinity of the project site.
- Increases in ambient noise levels due to increased traffic and building HVAC equipment on the project site.
- Increased use of energy and utilities.
- Increased generation of solid waste.
- Temporary construction-related inconveniences.

Mitigation measures to offset these impacts are summarized in Section 6.0.

5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable commitment of resources associated with the proposed project consist of resources that remain committed to a project through its lifespan (i.e., irreversible commitment) or those that are consumed or permanently impacted during project construction and operation as a result of the proposed project (i.e., irretrievable commitment).

Irreversible and irretrievable resources that would be committed to the SCSU Campus Master Plan projects include energy (electric and natural gas), construction materials, land, human labor, and finances. Energy will be consumed in project construction, and operation of the proposed development will require more energy than the existing structures and uses at the project site. A variety of construction materials would be used to construct the proposed buildings and facilities. The land would be developed, and commitment of the site to this use would preclude the possibility of other uses in the foreseeable future. The dedication of human labor to the construction and operational phases of the project represents an irretrievable expenditure of time and money. The expenditures required represent funds that, once committed, are no longer available for other purposes and once spent, cannot be regained.

6 SUMMARY OF MITIGATION MEASURES

Mitigation measures have been identified to reduce or offset potential adverse impacts associated with the Proposed Action. These are summarized in Table 6-1 by resource category as described in Section 3 of this EIE. Where no mitigation is proposed, the impact evaluation has determined that either the impacts are insignificant, requiring no mitigation, that no adverse impacts were identified, or that anticipated impacts would be beneficial.

Table 6-1. Summary of Mitigation Measures

Resource Category	Alternative	Anticipated Impacts	Proposed Mitigation
Traffic and Parking	2004	<ul style="list-style-type: none"> Potential lane closures and parking displacement during construction Increased heavy vehicle traffic during construction Increased vehicle trips 	<ul style="list-style-type: none"> Implement routing plan for construction vehicles Optimize intersection configuration and traffic signal timing Re-evaluate parking garage permit system and pricing structure Re-evaluate campus shuttle routes Other mitigation as determined through the State Traffic Commission process
	2008	<ul style="list-style-type: none"> Potential lane closures and parking displacement during construction Increased heavy vehicle traffic during construction Increased vehicle trips Decline in Level of Service at nearby intersections to unacceptable levels Redirect vehicles that can no longer use Farnham Ave following closure 	<ul style="list-style-type: none"> Implement routing plan for construction vehicles Optimize intersection configuration and traffic signal timing Re-evaluate parking garage permit system and pricing structure Re-evaluate campus shuttle routes For Wintergreen Garage Only: <ul style="list-style-type: none"> Fitch Street at Blake Street: Restripe the Blake Street westbound approach in order to provide a right turn lane. Fitch Street at Arch Street and Fairview Avenue: Provide a northbound right turn lane on the Fitch Street approach. This will require widening along the west side of the approach. Blake Street at Farnham Avenue: Provide a second approach lane on the Farnham Avenue southbound. This will require restriping in order to eliminate the existing parking lane in the vicinity of the intersection. Wintergreen Avenue at Wintergreen Garage Driveway: Widen Wintergreen Avenue east of the driveway in order to provide a westbound right turn lane. Fitch Street at Wintergreen Avenue: Optimize signal timing in order to provide acceptable LOS on all approaches. Crescent Avenue at Ella Grasso Boulevard: Optimize signal timing in order to provide acceptable LOS on all approaches. Other mitigation as determined through the State Traffic Commission process
Air Quality	2004	<ul style="list-style-type: none"> Construction-related impacts include localized air quality impacts from emissions from construction equipment engines and fugitive dust 	<ul style="list-style-type: none"> Implement construction best management practices to limit fugitive dust impacts. Use of emission control devices and/or clean fuels for diesel powered non-road construction equipment. Proper operation and maintenance of construction equipment. Incorporate the above mitigation measures into contract specifications. Use energy efficient equipment and materials in new buildings and alternative technologies to offset electrical usage and greenhouse gas emissions. Construction best management practices to limit fugitive dust impacts Prohibition of excessive construction equipment idling
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan

Resource Category	Alternative.	Anticipated Impacts	Proposed Mitigation
Noise	2004	<ul style="list-style-type: none"> Potential impacts from HVAC or other mechanical equipment Construction-related impacts are elevated noise levels associated with construction equipment and demolition and construction activities Increase in noise resulting from construction activity 	<ul style="list-style-type: none"> Proper maintenance of construction equipment Advance notification to nearby receptors if construction activities may produce temporary excessive noise levels Comply with Connecticut's Noise regulations. Limit construction work to daytime hours (7 a.m. to 10 p.m. local time). Incorporate the above mitigation measures into contract specifications. Site HVAC or other mechanical equipment away from sensitive receptors and provide shielding such as acoustical enclosures or barriers.
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Water Resources	2004	<ul style="list-style-type: none"> Disturbance of soil during construction with potential to result in erosion and sedimentation Increase in impervious surface with associated increase in stormwater peak discharges and pollutant loadings Construction of residential uses in 100-year floodplain 	<ul style="list-style-type: none"> Develop and implement a construction-phase erosion and sediment control plan and associated measures consistent with the state and local regulatory requirements. Incorporate sustainable site design elements and low impact development (LID) practices in the stormwater management system and site designs. Implement a stormwater management system to address a range of stormwater pollutants, including bacteria. Incorporate stormwater management measures consistent with campus-wide drainage master plan (under development). Incorporate oil/grit separators into interior parking garage drainage systems, prior to discharge to the sanitary sewer system. Elevate living space 1 foot above the 100-year flood elevation Floodproof service infrastructure Provide compensatory flood storage as necessary
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Wetlands	2004	<ul style="list-style-type: none"> Disturbance of soil during construction with potential to result in erosion and sedimentation with potential for discharge to wetlands 	<ul style="list-style-type: none"> Construction sediment and erosion controls
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Water Quality	2004	<ul style="list-style-type: none"> Disturbance of soil during construction with potential to result in erosion and sedimentation Increase in impervious surface with associated increase in stormwater peak discharges and pollutant loadings 	<ul style="list-style-type: none"> Construction sediment and erosion controls Incorporate sustainable site design elements and low impact development (LID) practices in the stormwater management system and site designs Stormwater management measures consistent with campus-wide drainage master plan (under development) Incorporate oil/grit separators into interior parking garage drainage systems, prior to discharge to the sanitary sewer system.
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Groundwater Quality and Resources	2004	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
	2008	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
Endangered, Threatened, or Special Concern Species or Habitats	2004	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
	2008	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed

Resource Category	Alternative.	Anticipated Impacts	Proposed Mitigation
Fish and Wildlife, Habitats, and Ecosystems	2004	<ul style="list-style-type: none"> Temporary displacement of urban wildlife from landscaped habitat during construction 	<ul style="list-style-type: none"> None proposed
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> None proposed
Historic and Cultural Resources	2004	<ul style="list-style-type: none"> Consolidation of buildings of historical significance on campus through moving Orlando House across Farnham Ave to be located near Admissions House and Lang Social Work House 	<ul style="list-style-type: none"> Memorandum of Understanding (MOU) with SHPO
	2008	<ul style="list-style-type: none"> Orlando House located within footprint of proposed residential building 	<ul style="list-style-type: none"> Relocate Orlando House and MOU with SHPO
Visual Resources	2004	<ul style="list-style-type: none"> Improved visual impact of campus Improved distinction of campus boundary 	<ul style="list-style-type: none"> Landscaping consistent with campus-wide landscape master plan (under development)
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Toxic or Hazardous Materials	2004	<ul style="list-style-type: none"> Construction could expose areas of contaminated soil that are currently unidentified Construction-related debris from the demolition and renovation of campus buildings may contain lead-based paint and asbestos containing materials. New laboratories will increase quantity of hazardous chemicals on campus and increase quantity of hazardous waste produced by campus 	<ul style="list-style-type: none"> Implement a protocol for sampling and analysis of potentially contaminated soil Conduct pre-demolition surveys for asbestos-containing materials prior to building demolition or renovation. Manage hazardous materials, wastes, and demolition debris following applicable regulations
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Energy Use and Conservation	2004	<ul style="list-style-type: none"> Increased building space could result in increased energy usage Potential beneficial impacts by demolishing older buildings and replacing with newer, more energy efficient buildings. 	<ul style="list-style-type: none"> Incorporate energy efficient design elements consistent with LEED and U.S. Green Building Council principles. Obtain LEED certification for buildings Building renovation to increase building efficiency Use of natural light Participation in Utility energy efficiency programs
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan
Public Health and Safety	2004	<ul style="list-style-type: none"> University Police and Student Health facilities currently undersized Increased demand on undersized facilities 	<ul style="list-style-type: none"> Provide additional space for police and health clinic Additional "blue light" callboxes on campus
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> New police and wellness buildings to meet projected campus needs Additional "blue light" callboxes on campus
Consistency with Planning	2004	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed
	2008	<ul style="list-style-type: none"> No impacts anticipated 	<ul style="list-style-type: none"> None proposed

Resource Category	Alternative.	Anticipated Impacts	Proposed Mitigation
Utilities and Services	2004	<ul style="list-style-type: none"> Adequate capacity for most utilities. Some sewer service to existing buildings may be undersized for existing uses. Generation of construction and demolition debris during construction/renovation 	<ul style="list-style-type: none"> Proposed connection to water, sewer, and storm systems should be coordinated with appropriate City departments prior to construction Increases in peak stormwater discharge rates should be attenuated Confirmation of sewer line capacity through metering of existing sanitary flows Construction and demolition debris will be segregated on-site and reused or recycled to the extent possible to reduce the need for landfill disposal. Include minimum reuse/recycling goals in construction contracts. Include design provisions to allow for source separation of recyclable materials for project buildings. Use building construction materials with recycled content for new and renovated buildings.
	2008	<ul style="list-style-type: none"> Same impacts as 2004 Plan 	<ul style="list-style-type: none"> Same mitigation as 2004 Plan

7 COST BENEFIT ANALYSIS

Costs and benefits associated with a project may be both quantifiable (tangible) and non-quantifiable (intangible). For the Proposed Action, quantifiable costs are those associated with the construction of the proposed development. Quantifiable benefits are the employment and income generated as a result of the development. The following sections summarize cost benefits associated with the preferred alternative (2008 development plan).

Costs

The estimated cost of the SCSU Campus Master Plan is approximately \$459.8M million at full buildout. The majority of these costs (approximately 87%) are for new construction of buildings, plazas, and landscaping, while approximately 6% and 7% are for demolition and renovation, respectively. Table 7-1 presents the estimated total cost for each type of improvement presented in the 2008 Campus Master Plan Alternative. Additionally, it is important to note that increased building area on campus will likely require additional support staff for maintenance.

Table 7-1. Anticipated Project Costs

Class of Construction	Cost
Demolition	\$25,350,000
Renovation	\$16,110,000
New Construction	\$399,090,000
Landscape-only projects	\$13,820,000
Total	\$454,370,000

The majority of the new construction costs are associated with the construction of parking structures; academic, research, and support buildings; and residence halls. Construction of the parking structures and academic, research, and support buildings was found to be necessary by Paulien and Associates (2003) as part of the space needs analysis for the campus. It is important to note that the needs analysis determined that demand for campus facilities is currently higher than available facilities for most uses and departments, and that for the projected build year (2015), demand is projected to increase, with a projected increase in student population of 20%. As such, SCSU must continue to grow its campus to support the increasing higher education needs.

Construction of new residential housing was not included in the 2004 Campus Master Plan alternative. However, Paulien and Associates (2003) found extensive renovation of several of the existing residence halls is necessary. The cost of renovation was estimated by SMMA to be approximately \$19,000 – \$31,000 per bed more expensive than construction of new residence halls (not including demolition). Therefore, the 2008 development alternative proposes the construction of new residence halls as opposed to renovation of existing residence halls.

The majority of funding for campus projects will originate from various state funding sources, including the General Fund, Auxiliary Fund, and CHEFA (Connecticut Health and Educational Facilities Authority).

The costs associated with mitigation to address potential adverse impacts identified in this EIE are associated with typical construction and demolition activities:

- *Air Quality.* Air quality mitigation to address construction-phase emissions, including limiting fugitive dust emissions, use of emission control devices and/or clean fuel for construction equipment, proper equipment maintenance, and prohibition of idling will not significantly add to project cost.
- *Noise.* Mitigation to address construction-phase noise includes proper construction equipment maintenance, advance notification to nearby receptors, complying with noise regulations, and limiting construction hours will not significantly add to project cost. Siting HVAC and mechanical equipment away from sensitive receptors are also included in construction costs.
- *Wetlands.* No direct wetland impacts are proposed, and potential impacts are limited to the construction phase. Mitigation is limited to using construction erosion and sediment controls to prevent discharges of sediment during construction. The cost of implementing erosion & sediment controls are included in construction costs.
- *Historical Resources.* Construction of a new residential building is proposed in a location that would require relocation or demolition of the Orlando Public Health building. This structure will be relocated to the southwest of its current location to preserve this historical structure. The cost associated with this measure is included in the renovation costs presented in Table 7-1.
- *Toxic or Hazardous Materials.* Mitigation of potential impacts in this category includes sampling and remediation of potentially-contaminated soil, conducting pre-demolition surveys, and managing demolition debris and construction-related wastes following applicable regulations. Costs associated with sampling and remediation of contaminated soil are difficult to anticipate since the source and type of soil contamination can result in extremely variable sampling, analysis, and cleanup costs. Costs associated with the latter two categories are generally included in the cost of demolition and construction.
- *Energy Use and Conservation.* Incorporating energy efficient design elements consistent with LEED and U.S. Green Building Council principles is required by DPW for new buildings and is therefore included in the estimated construction costs. Using natural light, increasing building efficiency through renovation, and participating in utility energy efficiency programs may increase construction costs but provide a lower cost of building operation, and thus implementation of these measures may result in reduced long-term project costs.

- *Public Health and Safety.* The proposed mitigation measures, including adding “blue light” call boxes and increasing facility space for University Police and student health facilities, are included as new construction costs in the development program.
- *Utilities and Services.* Mitigation measures for most potential impacts in this resource category, such as increasing sewer connection capacity if necessary, would generally be included in the cost of building construction as estimated by the architect. Attenuation of peak discharges of stormwater are necessary as discussed in [Section 3.5](#), the costs of which are presented in the Water Resources mitigation section below.

The cost of mitigation measures in the resource categories below are likely to include additional costs that have not been factored into the development program:

- *Traffic and Parking.* Additional parking proposed for the campus may generate additional vehicle trips (see [Section 3.2](#)). To date, traffic mitigation measures have been proposed for construction of the new Wintergreen Avenue Parking Garage (located adjacent to Moore Field House). Order-of-magnitude costs for these traffic mitigation measures (construction cost within -30% to +50% of the estimated cost) are provided in [Table 7-2](#).

Table 7-2. Estimated Traffic Mitigation Costs (Wintergreen Garage Only)

Location	Mitigation Measure	Cost
Fitch Street at Blake Street	Modify pavement markings	\$5,000
Fitch Street at Arch Street & Fairview Avenue	Sliver widening	\$20,000
Blake Street at Farnham Avenue	Modify pavement markings	\$5,000
Wintergreen Avenue at garage driveway	Widen for right turn lane	\$100,000
Fitch Street at Wintergreen Avenue	Retime traffic signal	\$5,000
Crescent Avenue at Roger White Drive & Ella Grasso Boulevard	Retime traffic signal	\$5,000
Total		\$140,000

In addition to these mitigation costs, additional traffic mitigation is also likely to be required for construction of the remainder of the development plan under the Preferred Alternative. These mitigation measures and costs will be identified during the subsequent traffic study and STC permitting for the remainder of the Master Plan buildout.

- *Stormwater and Drainage.* Costs associated with stormwater management measures to mitigate potential water quantity and quality impacts of new construction are generally included in the construction costs shown in Table 7-1. Additional stormwater

management measures may be required to mitigate the cumulative impacts of increased impervious surfaces resulting from the master plan buildout. These additional measures and associated costs will be identified in the SCSU Campus Drainage Master Plan, which is under development and will be completed upon approval of the Master Plan by the CSUS.

Drainage calculations and site plans provided by BL Companies for the proposed Wintergreen Avenue Parking Garage estimate a net reduction in impervious surface. As such, no peak runoff attenuation is required. BL Companies proposes construction of a stormwater treatment train to address water quality. The proposed treatment train includes deep sump catch basins with hoods and a proprietary stormwater treatment device.

The additional cost of deep sump catch basins with hoods compared to a standard catch basin is approximately \$1,500 to \$2,500 per unit. Typical costs for proprietary stormwater treatment devices are approximately \$2,500 to \$6,000 per cfs of flow treated plus 25-35% of structure purchase cost (FHWA, 2002), which could correspond to \$9,400 to \$24,300 for a 3 cfs estimated peak treatment flow. Table 7-3 presents estimated stormwater mitigation costs for the Wintergreen Avenue Garage Parking.

Table 7-3. Estimated Stormwater Mitigation Costs (Wintergreen Garage Only)

Measure	Selected Unit Cost	Quantity	Total Cost
Additional cost of deep Sump Catch Basins with Hooded Outlets compared to standard	\$2,000	15	\$30,000
Vortechs Unit	\$20,000	1	\$20,000
Total			\$50,000

Total estimated project costs are presented in Table 7-4, including mitigation for the Wintergreen Avenue Parking Garage only.

Table 7-4. Anticipated Project Costs Including Mitigation

Class of Construction	Cost
Project Cost	\$454,370,000
Mitigation (Wintergreen Garage Only)	\$190,000
Total	\$454,560,000

Benefits

Benefits of the Proposed Action include an improved educational experience for students, expanded accessibility to higher education at relatively low cost for students, the potential for additional support-related employment, additional parking for faculty, staff, and students,

improved appearance of campus, improved delineation of campus boundaries, reduced demand on the roadway network in the center of campus, and indirect benefits including increased consumer spending in neighboring areas.

Although these benefits have not been quantified, they are apparent based on the results of the space needs analysis and other factors observed in the vicinity of campus. Currently, the majority of campus residential buildings are constructed following outdated models with two students per room (occasionally now with three students occupying rooms intended for two) and common space limited to the building bottom floors. Other schools have rejected these models, providing students with single rooms linked around common areas to promote a living situation that allows more privacy with improved gathering spaces. By providing housing following newer models, SCSU will provide a better student life experience and may become more competitive with other universities.

In addition to providing a better educational experience, SCSU and the rest of the Connecticut university system provides low-cost higher education to both in-state and out-of-state students. In 2009, tuition and fees for in state students at SCSU were approximately \$3,590 per semester, and housing fees generally ranged from \$1,840 to \$3,963 per semester (depending on residence hall), for a total annual cost of \$10,860 to \$15,106 per year (SCSU, 2008a), whereas estimated 2008 to 2009 college tuition and fees in the United States was \$25,143 (College Board, 2008). As such, SCSU provides higher education at significantly reduced costs, potentially enabling low income residents to higher education. Existing estimates find that typical workers with an undergraduate degree earn approximately 60% more during their working lives than workers with only a high school degree (College Board, 2007). As such, adding capacity to handle the projected 1,634 full term equivalent students per year that SCSU anticipates has potential significant societal benefits.

Additionally, expanding the campus facilities may require additional support staff for campus operations and maintenance. The number of new positions that would be required has not been quantified. These support positions could provide new employment opportunities for the surrounding communities and the region.

The 2008 Campus Master Plan proposes new parking facilities that will relieve the existing parking shortage on and adjacent to campus. Locating the parking on the outskirts of campus that should relieve local traffic through campus, potentially easing congestion for neighbors that must drive through campus on a regular basis, and making campus safer for pedestrians.

Finally, the anticipated increase in student body that SCSU anticipates and plans to accommodate through implementation of Master Plan projects will likely have indirect beneficial impacts to neighboring areas through increased consumer spending. For example, the website campusfood.com lists 17 restaurants that cater to SCSU students in areas neighboring campus. Additionally, commercial districts near campus are likely to benefit from increased student enrollment.

8 POTENTIAL CERTIFICATES, PERMITS, AND APPROVALS

Table 8-1 lists the certificates, permits, and approvals that may be required for completion of the Proposed Action. Additional certificates, permit, and approvals may be identified following the CEPA process, pending final design of each component of the project.

Table 8-1. List of Certificates, Permits, and Approvals

Permit/Approval	Issuing Authority	Category	Comments
New Source Review Permit	CTDEP	Air Quality	Required for emissions released to the air from new and modified major stationary sources of air pollution.
General Permit to Limit Potential to Emit	CTDEP	Air Quality	Resubmit registration under General Permit for new source.
General Permit for Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activities	CTDEP	Hydrology	Required if total site disturbance during construction exceeds 1 acre
Flood Management Certification	CTDEP	Flood Hazard Areas and Storm Drainage	Required for site development affecting drainage or work in floodplain
Asbestos Abatement Notification	CTDPH	Environmental Risk	Asbestos abatement
Underground Storage Tank Registration and Closure Report	CTDEP	Demolition Permit	
Laboratory Wastewater	CTDEP	Utilities	
Certificate of Operation for a Major Traffic Generator	State Traffic Commission	Traffic and Parking	Any square foot addition to the campus or addition of 50 or more parking spaces
Inland Wetlands and Watercourses Permit	CTDEP	Wetlands and Water Resources	Required for state actions affecting wetlands or watercourses. Not currently anticipated to be necessary.
Individual Wastewater Discharge Permit	CTDEP	Utilities	Required for discharge of construction dewatering wastewater with potential for exceeding water quality standards, to surface water or treatment facility
Sewer Construction/Connection Permit	New Haven Water Pollution Control Authority	Utilities	Required for connection to existing sewer system
General Permit for the Discharge of Domestic Sewage	CTDEP	Utilities	Required for discharges of domestic sewage that are >50,000 GPD or >5% of receiving POTW design flow
General Permit for Hydrostatic Testing Wastewater	CTDEP	Utilities	Required for hydrostatic pressure testing of pipelines
General Permit for Miscellaneous Discharges of Sewer Compatible Wastewater	CTDEP	Utilities	Required for the discharge of various forms of wastewater including building maintenance wastewater and sprinkler system wastewater
Special Waste Authorization	Solid Waste	CT DEP	Disposal of demolition waste or contaminated soils

9 CONCLUSION

The Proposed Action is intended to enable Southern Connecticut State University to meet current and projected academic and research needs through providing additional educational, research, administrative, and campus life facilities for students, faculty, and staff. Through these projects, the Proposed Action would improve the educational experience provided by SCSU, which is a valuable resource for in-state students seeking an affordable, quality education. The project would also relieve existing parking congestion on and near campus by providing adequate parking for existing and future campus needs, and better define the bounds of campus, improving the relationship between SCSU and the surrounding neighborhood. The two alternatives considered in this EIE have similar impacts in each resource category, since the differences are generally limited to alternative building and parking configuration. The 2008 Alternative is the Preferred Alternative since it better meets anticipated campus needs through 2015.

Potential adverse impacts include increased traffic on local streets, increased stormwater pollution and peak discharge rates, flooding impacts associated with construction in a 100-year floodplain, increased generation of laboratory and other waste streams. These potential impacts would be mitigated through measures presented in this EIE, as well as additional mitigation measures that will be identified and/or refined following completion of ongoing campus planning (i.e., campus drainage master plan) and subsequent permitting (i.e., additional traffic impact studies in support of a master plan STC certificate). Comments received during the public review period for the EIE will be considered in making a final decision on the Proposed Action.

10 REFERENCES

Campusfood.com (2008). *Results for Southern Connecticut State University*. Accessed at <http://www.campusfood.com/about.asp> on January 19, 2008.

Clough, Harbour & Associates LLP, 1998, *Campus Utility Analysis & Recommendations for Southern Connecticut State University*;

College Board (2008). *Trends in College Pricing*. <http://professionals.collegeboard.com/profdownload/trends-in-college-pricing-2008.pdf> on January 19, 2009.

College Board (2007). *Education Pays; The Benefits of Higher Education for Individuals and Society*. Accessed at http://www.collegeboard.com/prod_downloads/about/news_info/trends/ed_pays_2007.pdf on January 19, 2009.

Connecticut Department of Public Works (2008). *Consultants Procedure Manual*. Approved June 13, 2009.

Connecticut Department of Public Works (1998). *Environmental Assessment Finding of No Significant Impact, Master Plan Improvements, Southern Connecticut State University*. Prepared by Fitzgerald & Halliday, Inc., Hartford, CT and Fuss & O'Neill, Inc., Manchester, CT.

Connecticut Office of Policy Management (2005). *Conservation and Development Policies Plan for Connecticut, 2005-2010*.

Connecticut, State of, Office of State Planning (1970). *Location of Existing Sanitary and Water Related Facilities Services and Uses*; CTOSP, Department of Finance and Control, Connecticut Water Resources Planning Project.

Federal Emergency Management Agency (1980, rev. 1983). *Flood Insurance Rate Map*. City of New Haven, Connecticut. New Haven County. Community Panel 0900840002 C. Revision date May 2, 1983.

Federal Emergency Management Agency (1980, rev. 1983). *Flood Boundary and Floodway Map*. City of New Haven, Connecticut. New Haven County. Community Panel 0900840002 C. Revision date May 2, 1983.

Federal Highway Administration (2002). *Stormwater Best Management Practices in an Ultra-Urban Setting: Selection and Monitoring*. http://www.fhwa.dot.gov/environment/h2o_abs.htm

Paulien and Associates, Inc. (2003) *Program for the Master Plan*, as summarized in the Southern Connecticut State University Campus Plan Update (Symmes Maini & McKee Associates, 2004).

Personal Communication (September 29, 2007) SCSU Director of Facilities Engineering and Environmental Services with Fuss & O'Neill.

Personal Communication (January 20, 2009) SCSU Director of Facilities Engineering and Environmental Services with Fuss & O'Neill.

Southern Connecticut State University (2008a). *Bursar's Office Tuition & Fees and Housing and Board Costs for 2009*. Accessed at <http://www.southernct.edu/bursar/> on January 19, 2009.

Symmes, Maini, McKee Associates (2006). *Southern Connecticut State University Campus Master Plan*. Cambridge, MA.

Symmes, Maini, McKee Associates (2008). *Southern Connecticut State University 2008 Master Plan Update (DRAFT)*. Cambridge, MA. Used as modified by Connecticut DPW.

Town of Hamden, 2004, *Hamden Plan of Conservation and Development*, adopted September 1, 2004.

United States Environmental Protection Agency (EPA), 2007, *2006 Annual Report on Air Quality in New England*, Office of Environmental Measurement and Evaluation, North Chelmsford, Massachusetts.